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REMOTE STORAGE

CATALOGUE

OF THE

AUSTRALIAN BIRDS

IN THE

AUSTRALIAN MUSEUM,

AT

SYDNEY, N.S.W.

PART I.

ACCIPITRES.

SYDNEY:
PRINTED BY ORDER OF THE MINISTER OF JUSTICE AND PUBLIC INSTRUCTION.

1876.

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OF THE

AUSTRALIAN ACCIPITRES

OR

DIURNAL BIRDS OF PREY

INHABITING AUSTRALIA,

IN THE

COLLECTION OF THE AUSTRALIAN MUSEUM

AT

SYDNEY, N.S.W.

BY

E. PIERSON RAMSAY, F.L.S., C.M.Z.S., &c., &c.

CURATOR OF THE MUSEUM, SYDNEY.

SYDNEY:
PRINTED BY ORDER OF THE MINISTER OF JUSTICE AND PUBLIC INSTRUCTION.

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PREFACE.

This Part I of the Catalogue of Australian Birds contains a description of all the Species of the Accipitres or Diurnal Birds of Prey at present known to inhabit Australia—in all 27 Species—and a list of such as are contained in the collection of the Australian Museum.

E. P. R.

Oberholser 1906, 49 Oberholser

REMOTE STORAGE

INTRODUCTION.

The fine collection of the Australian Diurnal Birds of Prey now exhibited in our Museum contains, with one exception,* examples of all the species which at the present time are known to inhabit this vast continent. Even in so extensive an exhibition of but comparatively a small group, certain breaks arising from the absence of specimens to duly represent the varied stages of growth, still occur and interfere with the regularity of the series appropriate to each species.

In order then to render this descriptive Catalogue of our raptorial birds as complete as possible, other collections have been carefully examined, and the additional information thus obtained has been embodied in the general text. In two or three instances where the specimens were very indifferent, or altogether wanting, recourse has been had for their description to the British Museum Catalogue of 1874, always in such cases pointing ou the authorities relied on.

Mr. Sharpe's Synopsis of the Accipitrine Order is for the most part adopted in the present arrangement, and his "Keys to the Genera" are also given, as they will prove valuable in showing the relations between the Australian forms and those of the other portions of the Globe.

The total number examined of specimens belonging to this group (Diurnal Birds of Prey) amounted to over 250, of which 140, comprising 26 species, are in the Museum collection; and for this ample display we are chiefly indebted to the exertions of our talented late Collector and Assistant Curator, Mr. George Masters, now in charge of the Macleay Collection.

* The Black-breasted Buzzard, *Gypoictinia melanosterna*.

This Catalogue contains not only an account and description of all the known species of Diurnal Accipitres indigenous to this country, but exhibits clearly what examples are required as desiderata for the accomplishment of a perfect series of the group, even from the nestling to the adult in each species.* We call attention to these wants, and urge our friends to assist by their contributions towards the completion of our national collection.

E. PIERSON RAMSAY.

"*Pres.*"	stands for	Presented by.
"*ad.*"	,,	adult or full grown.
"*semi-ad.*"	,,	semi-adult or half grown.
"*juv.*"	,,	young.
"*sk.*"	,,	skin—not "set up."
"*mntd.*"	,,	"set up" or "mounted."
"♂"	,,	male.
"♀"	,,	female.

* NOTE.—A complete series of any species would be fairly represented by a male and female in each of the sections A, B, C, and D—

A	representing	the adults in full plumage.
B	,,	semi-adult.
C	,,	the young.
D	,,	the nestling.

SYSTEMATIC INDEX.

ORDER, ACCIPITRES.

Page.

SUBORDER, FALCONES. 1

— Fam. Vulturidæ. 2
(*Not represented in Australia.*)

— Fam. Falconidæ.

Subfam. POLYBORINÆ. 2
(*Not represented in Australia.*)

Subfam. ACCIPITRINÆ. 2

1. Circus, *Lacép.* 4
1. assimilis, *J. & S.* 4
2. gouldii, *Bp.* 6
2. Astur, *Lacép.* 8
1. cinereus, *V.* 9
2. novæ-hollandiæ, *Gm.* 11
Subsp. α. leucosomus, *Sharpe* 12
3. approximans, *V. & H.* 13
4. cruentus, *Gould* 15
Subgen. α. Erythrotriorchis.. 16
5. radiatus, *Latham* 17
3. Accipiter, *Briss.* 18
1. cirrhocephalus, *V.* 19

Subfam. BUTEONINÆ.
(*Not represented in Australia.*)

Subfam. AQUILINÆ. 21

4. Aquila, *Mæhring* 25
Subgen. α. Uroaetus, *Kaup*... 25
1. audax, *Latham* 25
Subgen. β. Nisaetus, *Hodgs.* 27
2. morphnoides, *Gould* 28

5. Haliaetus 30
1. Haliaetus leucogaster..... 30

Page.

6. Haliastur, *Selby* 33
1. indus, *Bodd.* 33
Var. γ. girrenera, *V.* 33
2. sphenurus, *V.* 35
7. Milvus, *Savigny* 37
1. affinis, *Gould* 37
8. Lophoictinia, *Kaup* 38
1. isura, *Gould* 38
9. Gypoictinia, *Kaup* 40
1. melanosterna, *Gould* 40
10. Elanus, *Savigny* 41
1. axillaris, *Latham* 41
2. scriptus, *Gould*..... 43

Subfam. FALCONINÆ. 44

11. Baza, *Hodgs.*..... 45
1. subcristata, *Gould* 45
12. Falco, *L.* 47
1. melanogenys, *Gould* 48
2. hypoleucus, *Gould* 49
3. subniger, *Gray* 50
4. lunulatus, *Latham* 51
13. Hieracidea, *Gould* 55
1. berigora, *Vig. & Horsf* ... 55
2. orientalis, *Schl.*..... 57
14. Tinnunculus, *V.* 59
1. cenchroides, *Vig. & Horsf.* 60

SUBORDER, PANDIONES 62
15. Pandion, *Savigny*..... 62
1. haliaetus, *L.* 62
Var. β. leucocephalus, *Gould* 62

CATALOGUE

OF

BIRDS.

Order I. ACCIPITRES.*

Bill short, strong, stout at the base, more or less compressed, the culmen strongly curved downwards, the direction of the tip perpendicular. Feet strong, armed with powerful curved, elongated, sharp talons, of conical form and rather smooth. Talons capable of being bent under the feet, the inner one stronger than the others and more curved.

Synopsis of Suborders.

a. With no facial disk; plumage compact; nostrils generally not concealed by bristles.
  a[1]. Outer toe not reversible.....**FALCONES.**
  b[1]. Outer toe reversible .....**PANDIONES.**
b. With a facial disk; plumage soft and fluffy; nostrils usually hidden by stiff bristles ...**STRIGES.**

Suborder FALCONES.

Outer toe not reversible; toes devoid of feathers; eyes placed laterally in the head; cere, as a rule, not hidden by bristles, generally soft and fleshy, but often horny.

*The classification and synonyms given in this list have been compiled chiefly from Gray's Genera of Birds, and the British Museum Catalogue of 1874.

Synopsis of Families.

a. Head naked or clothed with down; no *true feathers on crown of head* ..... **Vulturidæ.**

b. Head covered with feathers; *true feathers always present on crown of head* ..... **Falconidæ.**

Fam. VULTURIDÆ.

No members of this family yet found in Australia.

Fam. FALCONIDÆ.

Crown of the head always clothed with feathers, though the sides of the face are often more or less bare.

Synopsis.

a. *Both the outer and inner toe* connected to the middle toe by a basal interdigital membrane ..... *POLYBORINÆ.*

b. *Outer toe only* connected to middle toe by an interdigital membrane.

a^1. Tibia and tarsus to all intents equal in length, the difference between them not so great as the length of the hind claw ..... *ACCIPITRINÆ.*

b^1. Tibia much longer than the tarsus, always exceeding it by more than the length of the hind claw.

a^2. Hinder aspect of tarsus scaled .... *BUTEONINÆ.*

b^2. Hinder aspect of tarsus reticulate.

a^3. Commissure of bill simply festooned ..... *ACQUILINÆ.*

b^3. Commissure of bill distinctly toothed ..... *FALCONINÆ.*

Subfamily POLYBORINÆ.

All the toes connected near the base by interdigital membrane; sides of the face for the most part bare.

The members of this subfamily are chiefly American, none have yet been found in Australia.

Subfamily ACCIPITRINÆ.

An interdigital membrane connects the outer to the middle toe; tibia and tarsus to all intents equal in length, the difference between them not so great as the length of the hind claw.

Key to the Genera.

a. Lores entirely bare, as well as the sides of the face and region of the mouth, extending above the eye and over the ear-coverts ..... POLYBOROIDES.

b. Sides of the face feathered, the lores always furnished with bristles.

a[1]. Hinder aspect of tarsus reticulate.

a[2]. Nostrils oval, with no bony excrescence ..... CIRCUS.

b[2]. Nostrils round, with a bony excrescence ..... MICRASTUR.

b[1]. Hinder aspect of the tarsus scaled.

c[2]. Ridge of bill measured from margin of cere greater than half the length of middle toe without claw.

c[3]. Commissure slightly festooned.

c[4]. Outer toe very short, equal to two-thirds of length of the inner toe (*without claw*); thigh-feathers close set, having no overhanging tuft of feathers .. GERANOSPIZIAS.

d[4]. Outer toe longer than inner toe without claw; thighs with overhanging tuft of plumes; *tail longer than wing* ..... UROTRIORCHIS.

e[4] Outer toe about equal to inner toe without claw; thighs with overhanging tuft of feathers.

aa. Nostrils with bony tubercle near upper margin.

aa[1]. Feathering of tarsus extending further down than length of middle toe (without claw); tarsus scaled right across, only the hinder margin of the outer aspect reticulate ..... ERYTHROCNEMA.

bb[1]. Feathering of tarsus not extending so far down as the length of middle toe; tarsus scaled in front, reticulate on outer aspect ..... MELIERAX.

bb. Nostrils oval, with no bony tubercle ..... ASTUR.

d[3]. Commissure perfectly straight ... NISOIDES.

d[2]. Ridge of bill, measured from anterior margin of cere, less than half middle toe without claw ..... ACCIPITER.

Brit. Mus. Cat. Accip., 1874, *pp.* 46, 47.

1. CIRCUS.

Type.

Circus, *Lacép. Mém. de l'Inst.* iii. p. 506 (1806) ..... C. cyaneus.
Pygargus, *Koch, Syst. Baier. Zool.* p. 127 (1816) ..... C. cyaneus.
Strigiceps, *Bp. Saggio Distr. Met. Anim. Vertebr.* p. 37 (1831) ..... C. cyaneus.
Glaucopteryx, *Kaup, Class. Säug. u. Vög.* p. 113 (1844) C. cineraceus.
Spizacircus, *Kaup, Mus. Senckenb.* iii. p. 258 (1845) ... C. maculosus.
Spilocircus, *Kaup, Isis*, 1847, p. 89 ..... C. assimilis.
Pterocircus, *Kaup, Arch. f. Naturg.* xvi. p. 32 (1850) Cf. *Saunders, Ibis*, 1873, p. 232 .... C. pygargus.

Bill moderate, elevated at the base of the culmen, and arched to the tip, which is hooked, the sides compressed, the lateral margins festooned, the nostrils large, oval, and partly concealed by the curved hairs of the lores. *Wings* long, the third and fourth quills nearly equal and longest. *Tail* long and rounded on the sides. *Tarsi* long, slender, and compressed, the outer side covered with transverse scales and the inner with small scales. *Toes* moderate, with the outer one longer than the inner; the claws long, slender, and acute.

The members of this genus are distributed over most parts of the world; they usually frequent the more open parts of the country—margins of lakes and swamps. Two species at least are known to inhabit Australia, and to range over the whole continent, with the exception of the north-western portion, where, doubtless, when those parts become explored, they will also be found.

1. Circus assimilis. *(Jard. & Selby.)*

Jardine's Harrier.

Circus assimilis, *Jard. & Selby, Ill. Orn.* ser. 1, pl. 51 (1826); *Wall. Ibis*, 1868, p. 19; *Sharpe, Brit. Mus. Cat. Acc.* i. p. 63 (1874).

Circus jardinii, *Gould, P.Z.S.* 1837, p. 141; *id. Bds. Austr.* i. pl. 27 (1848); *id. Hand-bk. B. Austr.* i. p. 60 (1865).

Spilocircus jardinii, *Kaup, Isis*, 1847, p. 102.

Strigiceps jardinii, *Bp. Consp.* i. p. 34 (1850).

Young. "Above ashy brown, the feathers broadly margined with pale tawny buff; the head and least wing-coverts deep rusty, with a few central streaks of dark brown; sides of face and of neck, as well as facial ruff, similarly coloured, but with rather broader streaks of brown; primaries black, secondaries browner, with tawny buff tips; all the quills pale ashy below on inner web, washed with rufous and mottled with ashy brown near base of primaries, barred with the same colour on the secondaries, the primaries coppery-brown underneath towards their tips; upper tail-

coverts white, washed with rufous, and having dark brown centres; tail sepia-brown, tipped with tawny buff and crossed with six bands of black, the subterminal one being the broadest; under surface of body pale tawny buff, inclining to white on abdomen and thighs, narrowly streaked with dark brown on the breast; the under wing-coverts coloured like the latter, but with rather broader streaks, the lower ones barred with ashy brown and pale tawny buff; axillaries brown, margined and notched with pale tawny."—*Sharpe, Brit. Mus. Cat.*, vol i. p. 63 (1874).

Progress towards maturity. The young after the second moult begin to assume the plumage of the adult, the chest becoming more and more washed with rufous buff; the flanks and abdomen are streaked instead of spotted with white as in the adult, and the feathers of the head deep rufous chestnut, centered with a broad blackish-brown stripe; the axillaries and under wing-coverts are striped, and the base of the inner webs of the primaries and tail-feathers on the under surface washed with pale rufous.

Adult female. Above pale bluish slate-colour; the crown of the head, cheeks, and ear-coverts broadly margined with bright deep chestnut; scapulars and wing-coverts with terminal spots of white, and a row of larger spots on either side of the shaft, on the body of the feather; shoulders deep rufous chestnut; wings bluish grey; anterior portion of primaries blackish, basal portion dark brown; secondaries narrowly edged at the tip with white; all barred with dark brown, the subterminal bar being the broadest; wings (underneath) light ashy grey; bars more distinct on the inner webs, except of the first four primaries, which are freckled with brown and washed with pale rufous buff in some specimens; under primary-coverts whitish, crossed with brown bars and tinged with chestnut on the margins; upper tail-coverts deep ashy brown, tipped and transversely blotched on both webs with white, interspaces of the outer ones washed with deep chestnut; tail ashy grey, lighter on the basal margin of inner webs; all the feathers tipped with white, crossed with seven to eight blackish bands; under surface of tail lighter; facial ruff and neck bluish grey; chest ashy grey, washed with rufous and spotted with white; remainder of under surface of the body, under wing-coverts, and axillaries deep rufous chestnut, each feather with a row of round white spots on each web; the spots are largest on the abdomen, flanks, and axillaries, and smallest on the thighs; under tail-coverts ashy grey near the end, and tipped with white, the spots forming oblong transverse white bars on some; cere olive; bill bluish horn-colour at base, culmen and tip black; tarsi olive; iris yellow. Total length, 23 inches; wing, 17½; tarsi, 3·9; middle toe, 1·8; bill, from posterior margin of cere, 1·3, along the culmen, 1·5.

Adult male. The adult male is a little smaller in its measurements, but the same in plumage.

Hab. This species ranges over the whole of eastern, north-eastern, southern, and south-western parts of Australia.

A. 1 ♀ ad. sk.	Richmond River, N.S.W.
B. 1 ♂ sk.	King George's Sound, W.A.
B. 2 ♂ mounted	New South Wales.
B. 3 ♂ mntd.	New South Wales.
C. 1 juv. sk.	New South Wales.

2. Circus gouldii.

The Allied Harrier.

Circus assimilis, *Gould, Bds. Austr.* i. pl. 26 (1848).

Circus approximans, *Peale, U.S. Expl. Expd.*, p. 64 (1848).

Circus gouldii, *Bp. Consp.* i. p. 34 (1850); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 72 (1874).

Circus wolfi, *Gurney, P.Z.S.* 1865, p. 823, pl. xliv.

Young. Above uniform dark sooty brown; nape and hind neck tinged mesially with deep rufous buff; wings blackish, secondaries, and some of the wing-coverts and primaries, margined with light brown, shafts reddish brown; under surface of the wing dull dark brown, basal portion of inner webs of primaries light brown and washed with fulvous on the margins, small feathers on under surface of shoulders tipped with deep rufous; axillaries indistinctly lined transversely in certain lights; rump and upper tail coverts dark blackish brown—the latter margined with fulvous, with the basal half buff tinged near the middle pale fulvous; tail above dark brown, blackish brown at the tips, margined with buff, inner webs of nearly all the feathers mottled with rufous, and showing signs of indistinct blackish bars, external feathers becoming more and more strongly washed with tawny rufous; tail beneath light brown, margins of inner webs washed with rufous, more extensively on external feathers, tips of all dark brown, their margins washed with buff, shafts whitish; whole of under surface of body very dark blackish brown tinged with chocolate in certain lights, centres of feathers darkest; flanks and abdomen washed with chocolate; thighs deep rufous; under tail-coverts blackish brown, a few tipped with fulvous; bill blackish brown; cere greenish yellow, legs and feet greenish white. Total length 20·5 inches; wing 15·3; tarsi 3·8, middle toe 1·55, hind toe 0·8, tail 10.

Progress towards maturity—light-coloured variety. Feathers on head and neck dark brown margined with buff or light rufous, basal portion of the feathers white, which shows conspicuously on nape

and hind neck; throat, chest, and facial ruff buff, each feather on throat narrowly, and those of the chest and ruff broadly centered with a dark brown stripe; ear-coverts and sides of the head dark brown tinged with rufous buff, a dark line down centre of each feather; lower portion of hind neck and between shoulders dark brown margined with rufous buff; scapulars above, back, and rump blackish brown, deeper towards end of each feather; a few of the scapulars having a narrow margin of buff, and a few of the rump feathers being tipped with rufous; upper tail-coverts white with a transverse blotch of pale rufous near their tip; exposed portions of tail feathers above ashy grey, all tipped with white and crossed with transverse bars of blackish brown; inner webs washed with rufous; outer webs of external feathers washed with same colour, but of a deeper tint towards base; under surface of tail feathers buff, the bars showing through indistinctly; general colour of wings above dark brown, feathers on shoulders margined with deep rufous, wing-coverts narrowly margined with buff; secondaries, primaries, and primary-coverts ashy grey, margined narrowly with white, their inner webs tinged with light rufous buff at the base, all crossed with a series of transverse blackish bars—indistinct only on the anterior portion of the primaries, which is of a blackish brown, the terminal bars the widest, forming a subterminal blotch of blackish brown; under surface of primaries and secondaries light ashy grey, having the basal portion of inner webs washed with rufous buff, dark bars of the upper surface distinctly showing through; axillaries and under wing-coverts light rufous buff strongly barred with deep rufous, shoulders underneath light rufous buff, each feather striped with deep rufous down the centre; chest and breast buff; abdomen, flanks, thighs, and upper tail-coverts rufous buff, deepest in tint on abdomen and flanks, each feather on chest and breast centered with a lanceolate stripe of dark brown, those of abdomen and flanks with a broad stripe, and those of thighs and under tail-coverts with a narrow stripe of rich rufous; bill black, cere greenish yellow; tarsi dark brown with a greenish tinge. Total length 21 inches, bill 1·3 inch, along the culmen 1·45, from anterior margin of nostril 0·75, wing from flexure 15·5 inches, tail 9·5, tarsi 3·8 inches, middle toe 1·7, hind toe 0·8.

Adult male. "Above earthy brown; the nape and hind neck slightly streaked with buff, most of the dorsal feathers with central markings of darker brown; quills brown shaded externally with grey; the secondaries narrowly tipped with fulvous, all with more or less distinct remains of blackish, forming on some of the secondaries a distinct subterminal spot; upper tail-coverts white, on some of them a slight spot of pale rufous; tail ashy grey, tipped with white; the central feathers entirely grey,

the exterior one gradually becoming more and more tawny rufous near the base, with a few dark brown mottlings; frontal and superciliary feathers dull whitish, not very distinct; sides of face and of neck dull rufous brown, streaked with dark brown; facial ruff rufous buff, streaked with blackish, and mottled with white; under surface of the body creamy white, with distinct streaks of pale rufous brown along the centre of the feathers, broader on the under wing-coverts and very narrow on the thighs and under tail-coverts; culmen pale greenish yellow; bill dark brown, bluish at the base; tarsi greenish white; feet yellowish buff; iris yellow. Total length 21·5 inches, culmen 1·5, wing 16·25 tail, 9·8, tarsus 3·9." *R. B. Sharpe, Brit. Mus. Cat.*, vol. i. p. 72, 1874.

Hab. The whole of the eastern, southern, and south-west portion of Australia; New Zealand, S.S. Islands, and New Caledonia.

A. 1 ad. mntd. New Zealand.
A. 2 ♀ ad. mntd. Christchurch, N.Z.
A. 3 ♀ ad. mntd. Botany N.S.W. Mr. G. Frost. Pres.

B. 1 sk. King George's Sound, W. Australia.
B. 2 ♂ sk. K.G.S., Western Australia.

C. 1 juv. sk. Victoria.
C. 2 ♀ juv. mntd. Botany, N.S.W.

2. ASTUR.

Type.
Astur, *Lecép. Mem. d'Inst.* iii. p. 505 (1801) .....A. palumbarius
Dædalion, *Sav. Descr. Egypte*, p. 267 (1809) .....A. palumbarius.
Sparvius, *Vieill. Analyse*, p. 24 (1816) .....A. palumbarius.
Tachyspiza, *Kaup, Class. Säug. u. Vög.* p. 116 (1844)A. soloensis.
Lophospiza, *id. tom. cit.* p. 118 (1844) .....A. trivirgatus.
Leucospiza, *id. tom. cit.* p. 119 (1844) .....A. novæ-hollandiæ.
Scelospiza, *Kaup, Isis*, 1847, p. 173 .....A. franciscæ.
Urospiza, *Kaup, Mus. Senckenb.* iii. p. 259 (1845)....A. approximans.
Urospizias, *Sharpe, Brit. Mus. Cat. Acc.* i. p. 159...A. radiatus.
Erythrotriorchis, *Gurney* (?), *vide P. Z. S.*, 1875, pt. iii., p. 338 .....A. radiatus.

Bill short, broad at the base, with the sides gradually compressed to the tip; culmen elevated, much arched to the tip, which is acute, and the lateral margins festooned in the middle; the nostrils large, suboval, and placed in the basal half of the cere. *Wings* long, reaching to the middle of the tail, with the third, fourth, and fifth quills nearly equal, and longest. *Tail* long and broad. *Tarsi* rather longer than the middle toe, the anterior and posterior sides covered with broad transverse scales.

Toes more or less lengthened, strong, and padded beneath each joint; the lateral toes unequal, the inner and hind toes equally long and strong, and armed with long, strong, and curved claws.

The members of this genus range over the whole of Europe, Asia, Africa, Polynesia, Australia, North America, and the northern part of South America.

1. Astur cinereus.

The Grey-backed Goshawk.

Sparvius cinereus, *Vieill. N. Dict.* x. p. 338 (1817).

Astur rayi, *Vig. Trans. Linn. Soc.* xv. p. 180 (1827); *Gray, Hand-l of B.* i. p. 30 (1869.)

Astur novæ-hollandiæ, *Gould, Bds. Austr.* i. pl. 14 (1848).

Leucospiza rayi, *Kaup, Contr. Orn.* 1850, p. 67; *Gould, Hand-bk. Bds. Austr.* i. p. 37 (1865.)

Astur ♀ nov. sp., *Ramsay, P.Z.S.*, 1868, p. 381–2. Var.

Astur cinereus, *Sharpe, Brit. Mus. Cat. Acc.* i. pp. 117, 118 (1874).

Adult female. Upper surface of body, wings, and the tail, bluish ashy gray, concealed portion of the feathers of the body and of the smaller scapulars white barred more or less with same tint; the sides of the head and ear-coverts of a lighter tint; tips of the primaries darker, very narrowly margined with white, their inner webs tinged with ashy brown, obsolete bars visible in certain lights on outer webs of primaries and secondaries; central portions of the inner webs of these feathers crossed with dark ashy-grey bars; the basal portions and inner margins (except at the tips) white; the whole of the under surface of the wing, except the outer margin of the tips of the primaries past the notch (where it is ashy grey), is of a pure glistening white, the bars and marking of the upper surface distinctly showing through; shafts of the quills white below, dark reddish-brown above; small feathers on the margins of the shoulders, the chest, breast, axillaries, and flanks white, crossed by numerous narrow lines of light bluish ashy-grey; sides of the neck barred like the chest but less distinctly; abdomen, thighs, and under tail-coverts, pure white; tail above, same as the back and wings, bluish ashy-grey, the tips of the feathers narrowly margined with white; the two centre tail feathers and the outer webs of the rest indistinctly, but the inner webs distinctly barred with a darker tint; the inner webs, which have a faint brownish tinge, are white at the base along the margin of the inner web, the shafts brown; under surface of tail glistening white, the bars and markings of the upper surface showing through distinctly on the inner webs, shafts white.

Bill and claws black; cere, base of bill, eyelids, legs and feet citron yellow; iris deep yellow.

Total length 20 inches, wing 12·9, tail 9·5, tarsus 3·4 ; hind toe 1·2, middle toe 2·1, bill from base of cere 1·3, along the culmen 1·45.

Adult male. Mr. Sharpe describes the male of this species as similar to the female, but smaller, and gives the following measurements :—"Total length 16·5 inches, culmen 1·2, wing 10·15, tail 7·8, tarsus 2·7" ; and also mentions an adult female in the collection of the British Museum which has the "wing-coverts and tail tipped with whitish, and the bars on the breast, which are a little more distinct than in the specimen of the adult male he describes, mixed with brown, evidently the signs of immaturity. Total length 20 inches, wing 12·25, tarsus 2·95."

"A younger bird does not exhibit the whitish margins to the wing coverts, but has the markings on the chest more elongate, these, as well as the other pectoral markings, being broad and distinct and brownish in colour ; iris brown." *Brit. Mus. Cat. Acc.* vol. i, p. 118.

Young female. Above dull ashy brown, in some slaty brown ; lower part of hind neck brown ; wings ashy- or slaty-brown above, white underneath, the tips of the primaries being ashy grey, and the basal portion of the inner webs of secondaries and some of the nearest scapulars barred with brown not quite across the feathers, under primary-coverts barred with brown ; sides of the head and neck dull brown, concealed portion of the feathers barred ; the upper tail-coverts and tail dull ashy brown, strongly barred with darker brown ; shafts reddish-brown ; under surface of tail, light grey almost white, the bars showing through ; the whole of the under surface of the body white ; chest, a few feathers on the breast, and the flanks, crossed with dull ashy brown or ashy grey bands, frequently wavy, or in some broadly hastate ; sides of the face and neck, throat and chest white, crossed with a few narrow wavy or hastate markings of brown.

In apparently full grown but not full plumaged birds, the upper surface is ashy-grey instead of brown, and the chest and breast crossed with numerous wavy bracket-shaped (⁀) bands of light ashy brown. The tail is always strongly barred in young birds.

Remarks. Both Mr. Gould (in his *Hand-book to the Birds of Australia*, vol. i, p. 38) and Mr. R. B. Sharpe (in the *British Museum Catalogue*, *Accipitres*, vol. i, p. 118) describe the male of this species as being similar in plumage to the female, but smaller. I can only say that during the last ten years having examined over fifty specimens of *A. cinereus* and *A. novæ-hollandiæ*, from Tasmania and all parts of Australia from Adelaide to Cape York, I have never yet met with one male in any other than a *snow white* plumage ; in size they differ considerably, some males being 21 inches in length, others only 14 inches, or perhaps less.

A. 1	♀ ad. sk.	Gayndah, Queensland.
A. 2	♀ „ „	Sydney, New South Wales.
A. 3	♀ „ „	Wide Bay, Queensland.
A. 4	♀ „ mntd.	New South Wales.
A. 5	♀ „ sk.	Pine Mts., Queensland.
B. 1	semi-ad. sk.	New South Wales.
B. 2	„ mntd.	New South Wales.

2. Astur novæ-hollandiæ.

The New Holland Goshawk, "White Hawk."

New Holland White Eagle, *Lath. Gen. Syn.* i. p. 40 (1781).

Falco novæ-hollandiæ, *Gm. S. N.* i. p. 264 (1788 *ex Lath*).

Falco albus, *White, Voy. N.S.W.* pl. 35 (1790).

Fair Falcon, *Lath. Gen. Syn. Suppl.* ii. p. 54 (1801).

Falco clarus, *Lath. Ind. Orn. Suppl.* ii. p. xiii (1801).

Sparvius niveus, *Veill. N. Dict.* x. p. 338 (1817).

Astur novæ-hollandiæ, *Vig. Zool. Journ.* i, p. 338 (1824); *Gould, Synops. B. Austr.* pt. 3 (1838); *Gray, Gen. B.* i. p. 27; *id. Hand-l. B.* i. p 29 (1869); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 118 (1874.)

Astur albus, *Jard. & Selby, Ill. Orn.* i. p. 1. pl. 1 (c. 1830).

Dædalion candidum, *Less. Traité*, p. 66, pl. 12, fig. 1 (1831).

Falco leucaetus, *Forster, Descr. An.* p. 70 (1844).

Leucospiza novæ-hollandiæ, *Kaup, Classif. Säug. u. Vog.* p. 119 (1844); *Gould, Handbk. B. Austr.* i. p. 38 (1865).

Adult male. The whole of the plumage is of a pure white; cere and legs, base of bill and eyelids, yellow; bill and claws black; iris carmine. Length 16·5 inches, wing 10·3, tail 7·5, tarsus 2·85, bill 1·1, culmen 1·3, hind toe 1·, middle toe 1·7.

Adult female. Pure white as in the male, but much larger. Total length from 18·5 inches to 20·2, wing 12 to 12·2, tail 9·2 to 9·5, bill 1·3, culmen 1·5, tarsus 1·2 to 1·3.

Young. Upper surface ashy brown, browner on the scapulars, concealed portions of all the feathers being white; face, sides of the head and neck, ear-coverts, and lower portion of the back, white, tipped and barred with ashy brown, lower part of hind neck, ashy brown, tinged with pale brown; margins of the shoulders tipped or barred with brown; primaries and secondaries dark brown, basal portion barred not quite across with darker brown, basal marginal half of inner webs white, secondary coverts above white tipped and barred with brown; wing-coverts, secondaries, and some of the inner primaries margined with white at the tips; under surface of the wing pure white, the margins of the primaries at the tips ashy grey, crossbars of upper surface

shining through ; upper tail-coverts and rump white at the base, narrowly margined, and barred with brown; tail above ashy brown, a little lighter on the inner webs, base of which is white extending along the margin to near the tips; all the feathers barred with dark brown, shafts reddish brown, barred with white on the centre two feathers ; outer webs narrowly margined with white at the base ; under surface of tail pure glistening white, the markings of the upper surface showing through ; all the under surface white, throat having a narrow line down centre of many of the feathers, chest and flanks with a broader central line and a few transverse bracket-shaped bars of brown ; bill and claws black ; base of bill, cere and legs, citron yellow ; iris brownish yellow. Total length 14 inches, wing 9·5, tail 7·1, tarsus 2·1, bill 1·05, culmen 1·2.—(*Mus. Dobroyde.*)

A. 1 ♀ ad. sk. Bowral, N.S.W. Major P. L. Shepherd. Pres.
A. 2 ♂ ad. sk. Illawarra, N.S.W.
A. 3 ♂ ad. sk. Nepean River, N.S.W. B. G. E. Shaw, Esq. Pres.
A. 4 ♀ ? ad. sk. Hamilton, Tasmania.
A. 5 ♀ ? Hobartown, Tasmania.
C. 1 sex. ? juv. mntd. Cape York.

Subsp. *a.*, **Astur leucosomus.**

Astur novæ-hollandiæ, *Schl. Voy. Ned. Ind.* p.p. 19, 58, pl. 11, fig. 3 (1866, *nec* Gm.).

Astur novæ-hollandiæ sub-sp. *a.* leucosomus. *Sharpe,—Brit. Mus. Cat. Acc.* vol. i. p. 119.

Adult male. The same in plumage as *Astur novæ-hollandiæ*, being "uniformly white like that species, but very much smaller ; cere yellow ; bill black; feet citron yellow ; iris orange-yellow. Total length 12·3 inches, culmen 1·1, wing 7·8, tail 5·9, tarsus 2·25, middle toe 1·2. (*Mus. Lugd.*). *Hab.* New Guinea and adjacent Islands."—*Brit. Mus. Cat. Acc.* i. p. 119 (1874).

Remarks. This appears to be merely a very small variety of *Astur novæ-hollandiæ*, of which species there are specimens from Cape York now in the Australian Museum and Dobroyde collections, which differ from the one above described only a very little in size. One of these specimens will be found under *Astur novæ-hollandiæ* " C. 1. juv."

Obs. Although for the present *Astur cinereus*, A. *novæ-hollandiæ*, and the subspecies *A. leucosomus* have been catalogued separately, it does not follow that they are specifically distinct, for it has by no means been satisfactorily proved that they are not mere varieties of one and the same species. A knowledge of their

nidification, and a large series of young birds in the different stages of plumage and from various localities must necessarily be obtained before the matter can be decided.

3. Astur approximans.

The Australian Goshawk.

Falco radiatus, *Temm. Pl. Col.* i. pl. 123 (1823, *nec. Lath.*)

Astur radiatus, *Vigors & Horsf. Tr. Linn. Soc.* xv., p. 181 (1827).

Astur fasciatus, *iid. tom. cit.* p. 181 (1827).

Astur approximans, *iid. tom. cit.* p. 181 (1827). *Ramsay, Ibis*, 1866, p. 326. *juv.*; Gould, *B. Austr.*, vol. 1., pl. 17; *id. Hand-bk. B. Austr.*, i. p. 41 (1865); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 126 (1874).

Accipiter approximans, *Strickl. Ann. Nat. Hist.* xi., p. 335 (1843); *Gray, Gen.* of *B.* i. p. 29. (1849; *id. Hand-l. B.* i. p. 34 (1869).

Nisus approximans, *Schl. Mus. P.-B. Astures*, p. 42 (1862).

Urospiza approximans, *Bp. Rev. et Mag. de Zool.* 1854 p. 538.

Urospiza radiata, *Kaup, Mus. Senck.* iii. p. 259 (1845).

Young. Varying from ashy brown to dark brown above, all the feathers more or less edged with rufous; sides of head, face, and throat, with a dark brown stripe down centre of each feather; the basal portion of the feathers on the back of the head and nape white, showing conspicuously with the brown and rufous markings of those parts; wings and tail dark brown, the inner webs of the feathers pale rufous, except at the tips, all crossed with numerous transverse narrow bars of blackish brown, eighteen to twenty in number on the tail, twelve to fourteen on wings; secondaries and tail feathers tipped with fulvous or dirty white; inner webs of tail feathers between the bars, light rufous above; outer webs above, deep rufous at the base of the external feathers in some; under surface of the tail white, shining, the rufous tint and bars distinctly showing through; under surface of body white or nearly so; chest streaked with irregular shaped somewhat oval blotches of dark brown—in some specimens strongly tinged with rufous, many of the feathers having a concealed transverse blotch near their centre; breast, abdomen, flanks, and under tail-coverts broadly barred with dark brown or rufous bands, margined on either side with brown, and barred with narrow wavy markings of a similar tint; under surface of wings white tinged with fulvous, crossed with dark brown bars; cere, and bill at base bluish lead-colour; culmen dark bluish horn-colour; legs and feet yellowish; iris bright yellow. Total length sixteen to nineteen inches.

Progress towards maturity. The longitudinal stripes on the throat, chest, and breast become transverse, the whole of the

under surface is crossed with narrow, wavy rufous bars, margined with dark brown, the whole of the upper surface of a uniform brown, without any rufous margins to the feathers; the head inclines to bluish slate-colour; few, if any, of the feathers on nape or hind neck show any white; the wings underneath become more and more washed with rufous and the bars on the tail less distinct.

Adult male. Above ashy brown, head, nape, shoulders, outer webs of secondaries and primaries bluish grey, inner webs light ashy grey, indistinctly barred with dark brown; a band across the hind neck vinous red, inclining to rufous, forming a collar wider on the sides of the neck, where it is of a deeper tint; rump and upper tail-coverts ashy brown; tail browner, indistinctly barred with darker brown; bars more distinct on the inner webs of the feathers which are of a lighter tint, and tinged with fulvous at the base of the outer ones; under surface of the tail feathers light silvery grey, bars much more distinct on all except the outermost on either side; inner webs of the first three on either side washed with light rufous; thighs rufous, barred with narrow indistinct lines of white; under tail-coverts, flanks, and remainder of the under surface except the throat, deep dull rufous, crossed with numerous wavy narrow bars of white, each bar bounded above and below with a narrow line of ashy brown; throat whitish, mottled with numerous transverse bars of ashy brown, tinged with rufous nearest the chest; under surface of primaries ashy grey, tips dark brown, washed with fulvous or light rufous on basal portion, and freckled with dark brown; concealed portions of the feathers on the inner webs crossed with blackish bars, interspaces near the shafts white; secondaries light ashy brown, silvery, bars nearly obsolete; under surface of the wings and the axillaries light fulvous or nearly white, crossed with numerous bars of rufous, bounded below with ashy; behind the thighs is a patch of clear rufous tinging the adjoining upper tail coverts; cere greenish yellow; bill dark horn colour at tip, and culmen, greenish olive at base; legs and feet yellow, claws black; iris deep yellow. Total length 16· to 17·2 inches, wing 10·5, tail 7·5 to 8·5, tarsi 2·9to 3·1, bill 0·9 to 1 inch.

Remark. In some apparently fully adult specimens the back is browner, the colour vinous red and less distinct, the under surface of the primaries washed with a deeper tint of light rufous, and the bars on quills and tail much more distinct.

Adult female. The same in plumage, but larger. Total length 17·5 to 20·5 inches, wing 12· to 12·3, tarsi 3·2 to 3·5, tail 9·5 to 10·5.

Measurements of average sized specimens.

Sex.	Total length.	Wing.	Tail.	Tarsus.	Mid. toe.	Bill.
Female	19· inches	12·1	10·5	3·5	1·6	1·0
Female	20· „	12·0	10·0	3·3	1·7	1·1
Male...	15· „	10·5	8·2	3·0	1·5	0·9
Male...	16·5 „	10·6	8·5	2·7	1·5	0·9

A. 1 ♂ ad. sk. Pine Mountains, Queensland.
A. 2 ♂ ad. sk. New South Wales.
A. 3 ♀ ad. mntd. New South Wales.
A. 4 ♂ ad. mntd. New South Wales.
A. 5 ♂ ad. mntd. New South Wales.
A. 6 ♀ ad. mntd. New South Wales.
A. 7 ♀ ad. sk. Gainsford, Queensland ; A. M. Foot, Esq., Pres.
B. 1 ♀ semi-ad. sk. Brisbane, Queensland.
B. 2 ♀ semi-ad. sk. Ryde, N.S.W. ; J. S. Blaxland, Esq. Pres.
C. 1 ♀ juv. sk. Tasmania.
C. 2 ♀ juv. mntd. New South Wales.
C. 3 ♀ juv. sk. New South Wales.

4. Astur cruentus.

The West Australian Goshawk.

Astur cruentus, *Gould, P. Z. S.* 1842, p. 113 ; *id. B. of Austr.*, vol. i, pl. 18 (1848) ; *id. Hand-bk. B. of Austr.* i. p. 43 (1865) ; *Sharpe, Brit. Mus. Cat. Acc.* i. p. 127 (1874).

Accipiter cruentus, *Gray, Gen. of Birds*, i. p. 29 (1849) ; *Bp. Consp.* i. p. 33. (1850).

Urospizia cruentus, *Kaup, Contr. Orn.*, 1850, p. 65.

Urospiza cruenta, *Kaup. P. Z. S.*, 1867, p. 176.

Adult. "Above ashy grey, with a bluish shade, especially distinct on the crown, sides of face, and wing-coverts ; nape somewhat varied with white ; sides of neck dull vinous, forming an imperfect collar round hind neck ; quills ashy grey, the primaries blacker, externally washed with ashy, all numerously barred with darker brown on the inner webs ; the lower surface ashy whitish, with a pale salmon-rufous tinge on inner web ; the bars by no means distinct near base ; tail ashy grey above, with a slight bluish shade, slightly tipped with ashy white, and crossed with fifteen or sixteen dusky bars, almost obsolete on the two central feathers ; throat dull white, mottled all over with ashy brown bars ; the rest of the under surface dull white, crossed with numerous bars of very pale vinous, inclining to grey on the lower under wing-coverts ; cere dull yellow ; bill blue at the base, black at tip ; feet pale yellow, claws black ; iris

bright yellow. Total length 21·5 inches, culmen 1·2, wing 12·5, tail 11, tarsus 3·4." *Sharpe, Cat. Brit. Mus.*, 1874, i. p. 128.

Remarks. Although I have examined a very beautiful series of Astures, carefully collected at King George's Sound, in Western Australia, by our late Assistant Curator, Mr. G. Masters; I have failed to detect such differences as would warrant any of them being separated into a distinct species from *Astur approximans* of Vigors and Horsfield, of which also I have examined a large number of specimens from all parts of Australia. The description transcribed above, taken I presume from the type specimen, and the beautiful figure given in Mr. Gould's great work on the Birds of Australia, so exactly agree with several adult males of *A. approximans* from New South Wales, now before me, that I am inclined to consider Mr. Gould's *A. cruentus* from Western Australia, and *A. approximans* from New South Wales, identical, or at most local varieties of the same species, nevertheless, not having an adult *male* in *full livery* from West Australia, I have transcribed the above description, in case I should be in error, and *A. cruentus* (*Gould*) yet be forthcoming.

Measurements of average sized specimens from the Western Australian series.

Sex.	Total length.	Wing.	Tail.	Tarsus.	Bill.
♂	16·5 inch.	9·3	8·2	3·2	·85
♀	17·5 ,,	10·6	9·2	3·3	·9
♀	16·2 ,,	10·	8·3	3·25	·9
♀	17·5 ,,	12·	9·3	3·5	1·1

B. 1 ♀ semi-ad. sk. King George's Sound, March, 1866.
C. 1 ♂ juv. sk. ,, ,, ,,
C. 2 ♀ juv. sk. ,, ,, ,,
C. 3 ♀ juv. mntd. ,, ,, ,,
C. 4 ♀ juv. mntd. ,, ,, ,,

Subgenus *a.* Erythrotriorchis.

5. Astur radiatus.

The Radiated Goshawk.

Radiated Falcon, *Lath. Gen. Syn. Suppl.* ii. p. 53, pl. 121 (1801).
Falco radiatus, *Lath. Ind. Orn. Suppl.* ii. p. 12 (1801).
Sparvius radiatus, *Vieill. N. Dict.* x. p. 340 (1817).
Haliaetus caleyi, *Vig. & Horsf. Trans. Linn. Soc.* xv. p. 186 (1827).
Nisus radiatus, *Less. Man. d'Orn.* p. 97 (1828).

Astur radiatus, *Gray, Ann. Nat. Hist.* xi. p. 189 (1843); *Gould, B. of Austr.* i. pl. 16 (1848). id. *Hand-bk. B. Austr.* i. p. 441 (1865); *Gray, Hand-l. of B.* i. p. 29 (1869).

Accipter radiatus, *Gould, Ann. Nat. Hist.* xi. p. 335 (1843).

Erythrotriorchis radiatus, *Lath., Sharpe, P. Z. S.* 1875, pt. iii. p. 338.

Astur testaceus, *Kaup, Isis,* 1847, p. 367, *et Contr. Orn.* 1850, p. 66.

Urospizia tricolor, *Bp. Rev. et Mag. de Zool.* 1854, p. 538.

Urospizias radiatus, *Sharpe, Brit. Mus. Cat. Acc.* i. p. 159 (1874), (BUTEONINÆ.)

Adult male. Upper surface of the body and wings (except the quills) bright rufous, duller on the head, brightest on the wing-coverts, shoulders, and upper tail-coverts, the feathers of the head and neck having a black stripe down the centre, all the others centered with black and broadly margined with bright rufous; the upper tail-coverts are ashy at the base and barred with dark brown, deepest near the tips of the feathers, which are broadly margined with bright rich rufous, through which a narrow black shaft line is produced from the subterminal bar. The spurious-wings, primaries and secondaries, dark ashy brown, darkest at the ends of the primaries, all crossed with blackish brown bars, darker and broader towards the tips of the feathers, the shafts light reddish brown; the inner webs of a lighter brown, becoming white at the base, where they are thickly freckled and spotted with markings and broken bars of dark brown. The secondaries very narrowly margined with white at the tips; under surface of primaries and secondaries ashy white (*glistening white in certain lights*), crossed with dark ashy-brown bars, becoming broken up into spots and freckles at the base of the inner webs, some of which have their margins slightly tinged with light rufous; the outer series of the under wing-coverts ashy white, crossed with ashy brown bars, and washed with light rufous on the tips and margins, those nearest the scapulars having a black shaft line, and remains of dark brown bars; the rest of the under wing-coverts rich rufous, with a black shaft-stripe widening into an angular subterminal spot, and remains of blackish cross-bars; wing-coverts above dark ashy brown, the outer series margined broadly on the outer, and slightly on the inner webs with rufous; the remainder ashy brown at the base, blackish at the tips, and broadly margined with rich rufous, deepest in tint on the marginal feathers and shoulders; throat buff tinged with rufous, and having a narrow black stripe down the centre of each feather; sides of the face and ear-coverts dull dark brown, narrowly margined with buff, those nearest the sides of the neck tinged with rufous; the whole of the under surface of the body bright deep rufous, each feather (except the axillaries, thighs, and under tail-coverts) centred with a black streak, widest on the chest and

breast, narrowing on the flanks, where it forms at the tips of the feathers a subterminal angular spot, almost obsolete or forming a narrow shaft-line only on the abdomen; tail below ashy white (*glistening in certain lights*) crossed with bars of blackish brown, the subterminal one broadest; upper surface of the tail dark ashy brown, crossed with (twelve or more) wavy bars of blackish brown, the last deepest and broadest, the tips narrowly margined with white; inner webs of the lateral feathers almost white at the base, the bars broken, and the interspaces thickly mottled with dark ashy brown; bill blackish horn colour, cere yellowish, iris deep yellow, legs and feet light yellow.

Total length 20 inches, wing 14·3, tail 9, tibia* 3·94, tarsus* 3, hind claw along the curve 1·35, across the curve 1·15; bill from forehead 1·1 inch, from gape 1·2, from nostril 0·7, height at nostril 0·5, width 0·45 (*Mus. Dobroyde.*)

Adult female. Similar in plumage to the male, but a little larger. Total length 22 inches, wing 15·8, tibia† 4·34, tarsus† 3·3, hind claw along the curve 1·8, across the curve 1·4. (*Aust. Mus.*)

A. 1 ad. ♀ mntd. New South Wales.

3. ACCIPITER.

	Type.
Accipiter, *Briss. Orn.* i. p. 310 (1760)	A. nisus.
Nisus, *Cuv. Leçons. Anat. Comp.* i. tabl. Ois. (1799).....	A. nisus.
Ierax, *Leach, Syst. Cat. Mamm., &c., Brit. Mus.* p. 10 (1816).....	A. nisus.
Hieraspiza, *Kaup, Class. Säug. u. Vög.* p. 116 (1844)...	A. virgatus.
Cooperastur, *Bp. Rev. et Mag. de Zool.* (1854) p. 538 ...	A. nisus.
Teraspiza, *Kaup. P.Z.S.* 1867, p. 171	A. virgatus.

Bill very short, with the culmen much arched to the tip, which is acute; the sides much compressed, and the lateral margins festooned; the nostrils placed anteriorly in the cere, large and suboval, partly concealed by the projecting hairs of the lores. *Wings* moderate, with the fourth and fifth quills nearly equal and longest. *Tail* long, ample, and nearly square at its end. *Tarsi* longer than the middle toe, covered in front with nearly obsolete scales. *Toes* more or less lengthened and padded beneath

* Measurements taken from ad. ♂ sk. the ends of the bones laid bare.

† Measurements taken from ad. ♀ mounted, the ends of the bones laid bare.

the joints; the lateral ones unequal, and the inner and hind toes equal in length, and both with a strong curved claw. *First joint* of middle toe very long.

Range. The members of this genus are found in all quarters of the globe; one species only inhabits Australia, its range extends over the whole north and south eastern, southern, and south-western portions of the continent.

1. Accipiter cirrhocephalus.

The Australian Sparrow Hawk.

New Holland Sparrow Hawk, *Latham, Gen. Syn. Suppl.* ii. p. 51 (1801).

Falco nisus, var., *Lath. Ind. Orn. Suppl.* ii. p. xi (1801).

Sparvius cirrhocephalus, *Vieill. N. Dict.* x. p. 329 (1817).

Accipiter torquatus, *Vig. Trans. Linn. Soc.* xv. p. 182 (1827). *Gould, Bds. Austr.* i. p. 19 (1848); *id. Hand-bk. B. Austr.* i. p. 45 (1865).

Nisus Australis, *Less. Traité*, p. 61 (1831).

Urospiza torquata, *Kaup, Isis*, 1847, p. 181.

Accipiter cirrhocephalus, *Gray, Gen. B.* i. p. 29 (1849); *Sharpe, Brit. Mus. Cat. Acc.* vol. i. p. 141 (1874).

Accipiter melanops, *Strickl. Orn. Syn.*, p. 111 (1855).

Nisus cirrhocephalus, *Schl. Mus. P.-B. Austeres*, p. 38 (1862).

Urospizia cirrhocephala, *Kaup, P.Z.S.*, 1867, p. 176.

Young. Dark brown above, with the feathers more or less margined with rufous; basal portions of the feathers on the nape and upper part of hind neck white, giving to those parts a mottled appearance; scapulars white at the base, barred with brown; the base of the feathers on the lower part of hind neck, back, and upper tail coverts are ashy brown; quills of wings and tail dark brown, margined with rufous at the tips, crossed with blackish-brown bars, most numerous on the tail; the marginal half of the inner webs of the wing feathers at the base ashy white, washed with pale rufous; same parts of the tail feathers light ashy brown, tinged with rufous on the edges; shafts dull reddish brown; under surface of the wings and tail ashy white, the inner margins washed with pale rufous, except at the tips of primaries, which are ashy brown past the notch; all the under surface ashy white, tinged with rufous on the thighs; throat white, with a stripe of dark brown down centre of each feather; chest blotched with dark brown, forming a triangular patch at the tip of each feather, which is centered with rufous; chest, breast, abdomen, flanks, and thighs, crossed with numerous transverse bands of dark

brown, the terminal band more conspicuously centered with rufous; the bands are narrowest and most numerous on the thighs; under tail-coverts sparingly barred with somewhat hastate markings of dark brown; bill dark horn colour; base and cere greenish; feet and legs yellowish, greenish grey in front; iris yellow.

Remark. The young females of this species are frequently confounded with the young males of *Astur approximans*, which they closely resemble in size and plumage. The *Accipiter's long middle toe*, with its *long first joint*, its *shorter* and somewhat *square tail*, which never exceeds more than 7·5 inches, will at once distinguish them.

Progress towards maturity. The longitudinal blotches on the chest widen into transverse bars, which gradually become narrower, the rufous markings develope into bars, and the brown become reduced into narrow conterminous lines; the white mottlings become less conspicuous on the back of the neck, and its sides tinged with rich vinous red.

Adult male. Above bluish ash-colour; head and wings slightly darker; sides of the face and ear-coverts lighter; a distinct collar of bright deep vinous red, broadest at the sides of the neck, where, in some specimens, a few of the feathers are also barred like those on the chest; basal portion of the nape feathers white; scapulars with concealed white spots, the lesser ones tinged and spotted in addition with vinous red near the base; inner webs of secondaries, and of the primaries as far as the notch, ashy brown, all crossed with dark ashy brown bars, most conspicuous on the marginal basal portion of the inner webs, which is white or slightly shaded with pale rufous; tail above bluish ash colour, inner webs having an ashy brown tinge, crossed with dark ashy brown bars; under surface light ashy brown, whitish in certain lights, and the dark bars showing more distinctly; wings underneath light ashy brown, whitish in certain lights; quills distinctly barred with dark brown, obsolete on outer webs; inner webs tinged and freckled with vinous red towards the base; under surface of shoulders and the under wing-coverts vary from buff to ashy white, crossed with numerous narrow wavy bars of ashy brown and vinous red; throat ashy white, with indistinct transverse bars of ashy brown; under tail-coverts ashy white, with remains of transverse bars of ashy brown and vinous red; chest and remainder of the under surface crossed with numerous narrow bars of ashy brown, deep bright vinous red, and white—the bars being broadest on the flanks and narrowest on the thighs; bill black, lead coloured at base; cere, legs, and feet yellowish, tinged with olive; iris yellow. Total length 12 inches, wing 8; tail 6, tarsus 2·3, middle toe 1·3, its first joint 0·6, bill 0·5, culmen 0·7.

A very highly coloured male in the Museum collection, from King George's Sound, has the chest and flanks and thighs of a deep rich vinous red, the cross-bars almost obsolete; the collar is of a much deeper tint than usual, but interrupted on the hind neck.

Adult female. Differs only in size, being a little larger and perhaps not so highly coloured as the male. Total length 14 inches, bill 3, culmen 9, wing 9·35, tail 7, middle toe 1·55, its first joint 0·7.

Measurements of average sized specimens from different localities.

Total length.	Bill.	Culmen.	Wing.	Tail.	Tarsus.	Middle toe.	Its first joint.	Locality, &c.
Inches.								
♀ 14·	·9	·95	9·3	9·6	2·5	1·55	·7	K.S.G., West Australia. ad.
♂ 12·	·6	·7	8·1	6·	2·35	1·3	·6	K.G.S. ,, ,, ad.
♀ 14·3	·8	·9	9·3	7·1	2·25	1·55	·7	Gayndah, Queensland. ad.
♂ 12·7	·65	·8	8·2	6·	2·4	1·4	·6	Port Lincoln, South Australia. ad.
♀ 13·5	·8	·9	9·3	7·	2·45	1·6	·7	K.G.S., West Australia. juv.
♀ 14·5	·8	·95	9·4	7·	2·6	1·65	·7	New South Wales. ad.

A 1 ♀ ad. sk. K. G. Sound, West Australia.
A 2 ♀ ad. sk. Gayndah, Queensland.
A 3 ♂ ad. sk. K. G. Sound, West Australia.
A 4 ♂ ad. sk. Port Lincoln, South Australia.
A 5 ♀ ad. mntd. N. S. Wales.
A 6 ♀ ad. mntd. Sydney, N. S. Wales.

C 1 ♀ juv. sk. K. G. S., West Australia.
C 2 ♂ ,, ,, ,, ,, ,,
C 3 ♂ ,, ,, N. S. Wales.
C 4 ,, ,, K. G. S., West Australia.

Subfamily AQUILINÆ.

Outer toe only connected to middle toe by membrane; tibia much longer than tarsus, exceeding it by more than length of hind claw; tarsus more than half the length of tibia, and reticulate on hinder aspect; bill festooned, but not toothed.

Key to the Genera.

a. Nostrils hidden by stiff bristles; chin with a long tuft of black bristly hairs..... GYPAETUS.

b. Nostrils visible; no chin tuft.

a[1]. Tarsi clothed with feathers all round to base of toes.

a[2]. Tail strongly graduated, wedge-shaped when closed, the middle feathers exceeding the outer ones by more than length of tarsus ..... UROAETUS.

b[2]. Tail nearly square or only moderately rounded, the difference in length of middle and outer tail-feathers inappreciable and less than length of tarsus.

a[3]. Distance between tips of primaries and tips of secondaries greater than length of tarsus.

a[4]. Claws curved and powerful, the outer toe with its claw exceeding in length the circumference of inner claw.

a[5]. No elongated crest; ridge of bill (without cere) greater than inner toe (without claw) measured from extremity of tarsal feathers ..... AQUILA.

b[5]. No elongated occipital crest; inner toe measured as above equal to circumference of culmen ..... NISAETUS.

c[5]. Crest long and wedge-shaped, longer than outer toe and claw; circumference of culmen decidedly less than length of inner toe ..... LOPHOTRIORCHIS.

b[4]. Claws nearly straight: the circumference of inner claw exceeding the length of outer toe even with its claw included ..... NEOPUS.

c[4]. Claws rounded and powerful; the circumference of inner claw about equal to the length of outer toe and claw..... SPIZIASTUR.

b[3]. Distance between tips of primaries and tips of secondaries less than length of tarsus.

d[4]. Crest-feathers sometimes fully developed, sometimes absent; wings short, falling short of ? tail by more than length of crest..... SPIZAETUS.

e^4. Crest-feathers extremely long and pendent, far exceeding in length the distance by which the wings fall short of the tail ..... LOPHOAETUS.

b^1, Tarsi bare on lower portion.

c^2. Bare part of tarsus equal to or longer than middle toe without claw.

c^3. Nostrils with osseous margin.

f^4. Nostrils circular.

d^5. Tarsi transversely plated in front..... ASTURINULA.

e^5. Tarsi reticulate in front ..... HERPETOTHERES.

g^4. Nostrils perpendicular ovals.

f^5. Crest-feathers lanceolate in shape, about equal in length to middle toe with claw.

a^6. Wing short, less than once and a half the length of tail..... DRYOTRIORCHIS.

b^6. Wing long, more than once and a half the length of tail CIRCAETUS.

g^5. Crest-feathers rounded, longer than middle toe with claw ... SPILORNIS.

d^3. Nostrils oval, with a superior membrane ..... BUTASTUR.

d^2. Bare part of tarsus less than middle toe without claw.

e^3. Nostrils more or less perpendicular ovals, with bony margin all round.

h^4. Eyebrow feathered.

h^5. Crest-feathers rounded; wing exceeding tip of tail by more than length of tarsus..... HELOTARSUS.

i^5. Crest-feathers lanceolate; wings reaching nearly or quite to tip of tail..... HALIAETUS.

i^4. Eyebrow bare ..... GYPOHIERAX.

f^3. Nostrils circular, with bony margin all round..... HALIASTUR.

g^3. Nostrils oblique, generally closed in with a superior membrane, so as to render the nasal opening almost linear in character.

h^4. Tail forked, outer tail-feather longest.

h^5. Distance between tips of primaries and tips of secondaries equal to fork of tail.

c^6. Wing extremely long, exceeding length of tail by more than twice the length of tarsus ..... ELANOIDES.

d^6. Wing very long, but not exceeding length of tail by twice length of tarsus..... NAUCLERUS.

l^5. Distance between tips of primaries and tips of secondaries greater than difference between longest and shortest tail-feather (*i. e.* fork of tail).

e^6. Distance from angle of mouth to anterior margin of nostril greater than distance from latter point to tip of beak... MILVUS.

f^6. Distances as above measured equal ..... LOPHOICTINIA.

g^6. Distance from angle of mouth to nostril less than distance from latter point to tip of beak ..... ROSTHRAMUS.

l^4. Tail rounded, outer feather shorter than middle one.

m^6. Ridge of bill (without cere) greater than half of middle toe (without claw).

h^6. Loral space bare ..... LEPTODON.

i^6. Loral space feathered.

a^7. Wings reaching right to end of tail.

a^8. Bare part of tarsus in front greater than half of middle toe (without claw)..... GYPOICTINIA.

b^8. Bare part of tarsus in front less than middle toe (without claw) ELANUS.

b^7. Wings falling short of tail by at least as much as, or even more than, length of tarsus.

c^8. Tail not four times length of tarsus ..... GAMPSONYX.

d^8. Tail very long, more than five times length of tarsus ..... HENICOPERNIS.

^{5}. Ridge of bill (without cere) less than half of middle toe (without claw).

k^6. Bill weak and slightly keeled; loral plumes produced above half the nostril ..... MACHEIRHAMPHUS.

l^6. Bill stout; loral plumes not produced beyond posterior margin of nostril... PERNIS.

Sharpe, Brit. Mus. Cat. Acc. vol. i. pp. 225-3 (1874).

4. AQUILA.

Bill strong, straight at the base, and with the apical portion much curved to the tip, which is greatly hooked and acute; the sides much compressed, and the lateral margins festooned, the nostrils placed in cere, large, and rather oblique. *Wings* lengthened and acute, with the fourth and fifth quills equal and longest, tail long, wedge-shaped, squarish or rounded at the end. *Tarsi* rather longer than the middle toe, robust, and entirely clothed to the base of the toes with feathers. *Toes* moderate, strong, lateral ones unequal, and all armed with strong, curved, acute claws, the inner the strongest.

SUBGENUS *a*. UROAETUS.

Tail strongly graduated, wedge-shaped when closed, the middle feathers exceeding the outer ones by more than the length of the tarsus.

Type.

Uroaetus, *Kaup, Classif. Säug. u. Vög.* p. 121 (1844.)... U. (A.) audax

Range. The whole of Australia and Tasmania.

1. Aquila (*Uroaetus*) audax.

The Wedged-tailed Eagle.

Bold Vulture, *Lath. Gen. Syn. Suppl.* ii. p. 10 (1801).

Vultur audax, *Lath. Ind. Orn. Suppl.* p. 2 (1801).

Mountain Eagle, *Collins, N.S.W.*, p. 526, pl. 31 (1804).

Aquila albirostris, *Vieill, N. Dict.* i, p. 229 (1816).

Falco fucosus, *Temm. Pl. Col.* i. pl. 32 (1824).

Aquila fucosa, *Vig. Zool. Journ.* i., p. 337 (1824); *Gould, B. Austr.* i. pl. 1 (1848).

Aquila audax, *Gray, Ann. N. H.* xi. p. 189 (1842); *id. Gen. B.* i. p. 14 (1845); *Gould, Hand-bk. B. Austr.* i. p. 8 (1865). *Gray, Hand-l of B.* i. p. 11 (1869).

Uroaetus fucosus, *Kaup, Classif. Säug. u. Vög.*, p. 121 (1844).

Aquila cuneicaudata, *Brehm, Isis*, 1845, p. 356.

Uroaetus audax, *Sharpe, Brit. Mus. Cat. Acc.* i. p. 231 (1874).

Adult female. Above blackish brown, all the feathers white at the base; hind neck and nape tawny chestnut; median wing-coverts ashy brown, centred with blackish; primaries black; remainder of the quill feathers of the wings, and the tail blackish, crossed near the tips with ashy brown bars, and margined with brown at the tips; the basal portion of the inner webs light ash, almost white in the tail feathers and mottled with white in those of the wings; the feathers of the back and rump all more or less tipped with fulvous brown; upper tail-coverts light brown, shaded with ashy on their margins. The whole of the under surface blackish brown, each feather more or less distinctly tipped or margined with light brown; under tail-coverts buffy-brown. Cere and orbits whity-brown; bristles black; bill pale horn-brown, black at the tip and for a short distance along the culmen; feet yellowish; claws blackish horn color; irides hazel. Total length 3 feet 6 inches, tail 17 inches, wing 25·7, bill from posterior margin of cere 2·6, from anterior margin of cere 2·7, height from culmen to lower margin 1·2; tarsus 4·8, hind toe 2·1, its claw 2·6, middle toe 3·3, its claw 1·7.

Adult male. Similar in plumage to the female, but seldom quite so large; deeper in tint of colouring, the nape, hind neck and median wing-coverts being bright rufous chestnut.

Young. General colour rusty-red intermixed with dark brown; crown of the head dark-brown, each feather tipped with rufous fawn-colour; nape and hind neck rufous chestnut, lower part of hind neck paler, and shaded with dark brown in the centre, tipped with fulvous; on the back and rump dark brown, lighter near the tips, which are fringed with whitish down; the base of the feathers mottled with white and brown in the form of broken transverse bars; upper tail-coverts shaded with light and dark brown, lateral and terminal ones of fulvous, some with a subterminal spot of fulvous, and all finally fringed with whitish down, and mottled with white and brown broken transverse bars at the base; tail black above, dark brown below, whitish at the base of the feathers, towards the tips barred transversely with light brown and tipped with fulvous; under tail-coverts fulvous tipped with down of a paler tint; shoulders above rufous fawn-colour mesially shaded with dark brown; smallest wing-coverts dark brown slightly tipped with light rufous, median coverts fawn-colour, greater coverts blackish brown, indistinctly barred with ashy-brown, mottled with white near the base of the feathers; primaries black, dark ashy brown mottled with white at the base; secondaries and scapulars blackish brown barred near the tips with ashy-brown, which colour predominates on those nearest the body, the basal interspaces on the inner webs being white; under surface of the shoulders to the angle of the wing dark brown tipped with whitish, from thence to the base of the

primaries fulvous shaded with dark brown; under primary coverts brown, washed with ashy-brown at the base; under surface of quills dark brown, at the base washed with ashy and mottled with white; the secondaries, inner primaries, and scapulars all crossed more or less distinctly with ashy-brown bars; throat and remainder of the under surface blackish brown; feathers on lower part of the neck and chest tipped with rufous fawn, the remainder tipped with whitish brown, and fringed with white down. In a much younger bird the whole of the feathers, including the wing and tail quills are fringed with down at the tips.

Nestling two months old. Covered with snow-white down; eyelids and cere bluish (?) white; iris rich hazel; bill black; leg and feet dull flesh colour.—(*Mus. Dobroyde.*)

Habitat. The whole continent of Australia and Tasmania.

Measurements of Specimens.

Total length.	Wing.	Tail.	Tarsus.	Bill.	Culmen.	Height of do.	Hind toe.	Its claw.	Middle toe.	Its claw.	Remarks.
ft. in.	in.										
♀ 3 6	25·	18·	4·7	2·4	3·4	1·1	2·	2·4	3·2	1·6	Wide Bay, Queensland.
♀ 2 10	20·	13·	4·3	2·45	3·	1·0	1·7	1·9	2·9	1·6	juv. Wide Bay.
♂ 3 7	25·6	17·5	4·5	2·6	3·5	1·2	2·1	2·6	3·3	1·7	Ouse River, Tasmania.
♂ 3 2	23·5	16·5	4·2	2·3	3·2	1·0	1·7	2·15	2·9	1·5	

A. 1 ♂ ad. sk. Ouse River, Tasmania.
A. 2 ♀ „ „ Wide Bay, Queensland.
A. 3 ♂ „ mntd. New South Wales.
A. 4 ♀ „ „ New South Wales.
A. 5 „ „ Ouse River, Tasmania.
C. 1 ♀ juv. sk. Wide Bay, Queensland.

SUBGENUS β. NISAETUS.

Type.

Nisaetus, *Hodgs. J.A.S.B.* v. p. 227 (1836) ..... N. fasciatus.
Eutolmaetus, *Blyth, J.A.S.B.* xiv. p. 174 (1845) ..... N. fasciatus.
Butaetus, *Blyth, (l.c.) nec Less.* ..... N. pennatus.
Hieractus, *Kaup, Mus. Senckenb.* iii. p. 260 (1845) ... N. pennatus.
Tolmaetus, *Blyth, J.A.S.B.* xv. p. 5 (1846) ..... N. fasciatus.
Pseudaetus, *Bp. Cat. Ois. Eur. Parzud.* p. 1 (1856) ... N. fasciatus.
Aquilastur, *Brehm, Ber. Orn. Vers. Stuttg.* 1860, p. 53 N. fasciatus.

Range—Africa, countries bordering the Mediterranean, India and Ceylon, and Australia.

2. Aquila (*Nisaetus*) morphnoides.

The Morphnoid Eagle, Little Eagle, &c.

Aquila morphnoides, *Gould, P.Z.S.*, 1840, p. 161; *Gray, Gen. of B.* i. p. 14 (1845); *id. Hand-l. of B.* i. p. 12 (1869). *Gould, B. Austr.* i. pl 2 (1848).
Butaetus morphnoides, *Blyth, J.A.S.B.* xiv. p. 546 (1845).
Hieraetus cristatus, *Blyth, J.A.S.B.* xv. p. 4 (1846).
Hieraetus morphnoides, *Kaup, Isis*, 1847, p. 243; *Gould, Hand-bk. B. Austr.* i. p. 11 (1865).
Nisaetus morphnoides, *Sharpe, Brit. Mus. Cat. Acc.* i. p. 254 (1874).

Adults. Both the male and the female vary considerably, both in size and in the intensity of the colouring and tints, in some the prevailing colour below being rufous brown, in others buff or white.

Adult female, (*the most usual variety*). The whole of the head and neck, chest, breast, and flanks, dark brown washed with tawny rufous or dull rust-red, each feather with a stripe of blackish brown down the centre, which stripe becomes almost jet black on the crown of the head, nape, and sides of the face, and extends over the tips and greater portion of each feather; abdomen and thighs rufous brown, with a narrow line of blackish down the shaft of each feather; under tail-coverts dull rufous brown washed with ashy at the tips and freckled with ashy brown and white (*in some* forming white cross-bars). Primaries blackish brown, black at the tips, the inner four quills ashy brown, margined with white at the tips, all crossed with seven or eight blackish bands, interspaces at the base ashy white; secondaries varying from dark to light ashy brown, lightest at the base of inner webs, all more or less tipped with white and barred similar to the primaries; wing-coverts of various shades of light and dark brown, some washed with ashy brown, indistinct obsolete bars on most of them on the concealed portions, interspaces whitish; median coverts ashy brown shaded mesially with darker tint, and margined with ashy white, forming a light-coloured and more or less broad longitudinal band across the wing to the shoulder; larger scapulars dark blackish brown, the basal half of the feathers becoming lighter, barred like the secondaries; smaller scapulars and remaining coverts lighter brown shaded mesially with darker, occasionally margined with ashy white, as in the median coverts; all the wing feathers being white at the base; shoulders varying from dark to light brown, the feathers all more or less margined with ashy white, the central portion darker, the marginal feathers brown washed with rufous, having a blackish shaft line; under surface of the wings blackish brown tinged with rufous near the body, the primaries and secondaries ashy brown, lighter on the inner webs, the cross bars of the upper surface showing through, the interspaces ashy brown becoming white at the base, secondaries margined with white at the tips, tips of the primaries blackish brown, shafts brown, white at the base; under surface of the scapulars ashy, inner webs ashy white, bases white, bars indistinctly showing

through on the larger feathers; back and rump dark brown, shaded mesially with blackish brown, feathers white at the base; central upper tail-coverts, blackish brown, lateral ones ashy brown washed with rufous nearest the thighs; terminal ones ashy brown tipped with white, outer ones margined with white and occasionally crossed with whitish bars; tail above ashy brown, inner webs of a duller brown, their bases white mottled with brown, all the feathers crossed with seven or eight curved bars of dark brown, the last the darkest, the tips margined with ashy white shafts brownish, at the base white; tail below glistenig ashy white, two or three of the bars showing through near the tips; cere lead blue; bill bluish lead at base, black at the tip; iris reddish brown; feet lead blue. Total length 22 inches, wing 15½, tail 9½, tarsus 2¾, bill 1·4.

A very remarkable variety, apparently fully adult, has the sides of the head and hind neck tawny rufous with a blackish stripe down the centre of each feather; the under wing-coverts and basal portions of the inner webs of the primaries below pure white, with a linear or lanceolate mark of brown or pale rufous, on the shaft or near the tips of the feathers; the axillaries and some of the under wing-coverts have two or three such marks, the terminal one being usually broadest; sides of the chest and flanks buff washed with light rufous, with a blackish brown stripe down the centre of each feather; thighs and legs to the toes buff shaded with light rufous, under tail-coverts buff, abdomen white; the inner primaries above the secondaries and feathers of the longitudinal band across the wing, are largely margined with whitish ash.* (*Mus. Dobroyde.*)

Adult male. In plumage similar to the females, but in size much smaller, they are usually darker in colour, and the abdomen, flanks, and thighs of a more uniform tint of rufous, the shaft lines always darker.*

Habitat. Eastern Australia, Queensland as far inland as Bourke, and Western Australia; in all probability its range will be found to extend over the whole continent of Australia.

A 1 ♀ ad. sk. K. G. Sound, West Australia.
A 2 ♂ ad. sk. K. G. Sound, West Australia.

**Measurement of Adults.*

Total Length.	Wing.	Tail.	Tarsus.	Bill.	Culmen.	Mid Toe.	Hind Toe.	Remarks, &c.
Inches.								
♀ 21·5	15·5	9·5	2·8	1·4	1·7	2·0	1·3	K.G.S., West Australia.
♀ 21·0	15·2	8·5	2·6	1·45	1·7	2·1	1·3	Barkoo R., N.S. Wales. Mus. Dobroyde. Very light plumage.
♂ 17·5	13·7	8·0	2·2	1·2	1·5	1·7	1·0	K.G.S., West Australia.
♂ 16·2	13·0	8·0	2·1	1·1	1·4	1·5	1·0	Shot nr. Sydney, N.S.W. Mus. Dobroyde.

5. HALIAETUS.

Type.

Haliaetus, *Savign. Syst. Ois. d'Egypte*, p. 254 (1809) H. albicillus.
Cuncuma, *Hodgs. J. A. S. B.* vi. p. 367 (1837) ..... H. leucoryphus.
Pontoaetus, *Kaup, Classif. Säug. u. Vög.* p. 122 (1844) H. leucogaster.
Thalassoaetus, *Kaup, t. c. p.* 123 ..... H. pelagicus.
Blagrus, *Blyth, Cat. B. Mus. A. S. B.* p. 30 (1849)... H. leucogaster.
Pontoaetus, *Kaup, Mus. Senck.* iii. p. 261 (1845)..... H. leucogaster.

Bill large, culmen straight at the base and curved to the tip, which is hooked and acute, the sides compressed, the lateral margins slightly festooned, and the lores naked; *nostrils* moderate, narrow, oval, and oblique; *wings* lengthened and acute, with the third, fourth, and fifth quills nearly equal and longest; *tail* moderate and somewhat rounded; *tarsi* short, strong, covered in front with transverse narrow scales, and with irregularly placed ones posteriorly, and on the sides; *toes* long, mostly covered above with transverse scales, the claws long, curved, acute, and strong.

Range. Members of this genus are found to range over the whole of Europe, Asia, Africa, Southern India, and Eastern Peninsula, Oceania, Australia, and North America.

1. Haliaetus leucogaster.

The great fishing Eagle, Sea Eagle, &c.

White-bellied Eagle, *Lath. Gen. Syn.* i. p. 33 (1781).

Falco leucogaster, *Gm.* S. *N. I.* p. 257 (1788 *ex Lath*); *Temm. Pl. Col.* i. pl. 49 (1823).

Le Blagre, *Levaill. Ois. d'Afr.* i. pl. 5 (1797).

Falco blagrus, *Daud. Traité*, ii. p. 70 (1800 *ex Levaill*).

Haliaetus blagrus, *Cuv. Règne An.* i. p. 316 (1817); *Bp. Consp.* i. p. 15 (1850).

Falco dimidiatus, *Raffl. Tr. Linn. Soc.* xiii. p. 277 (1822).

Pandion blagrus, *Bonn. et Vieill. Enc. Méth*, iii. p. 1200 (1823).

Haliaetus leucogaster, *Vig. Zool. Journ.* i. p. 336 (1824); *Gould, Syn. Bds. Austr.* pt. 3, pl. 37. fig 1 (1838); *Sharpe, Brit. Mus. Cat. Acc.* vol. i. p. 307 (1874); *Jerd. B. Ind.* i. p. 85 (1862); *Finsch u. Hartlb. Faun. Centralpolyn.* p. i. (1867) *Gray, Hand-l. of B.* i. p. 17 (1869); *Schl. Mus. P.-B. Revue Accipitr.* p. 117 (1873).

Haliaetus dimidiatus, *Vig. Mem. Raffl.* p. 648 (1830); *Gray, Gen. B.* i. p. 17 (1845); *Strickl. Orn. Syn.* p. 54 (1855).

Haliaetus sphenurus, *Gould. P. Z. S.* 1837, pp. 97, 138; *id. Syn. B. Austr.* pt. 3, pl. 37, fig. 2 (1838).

Ichthyaetus cultrunguis, *Blyth, J. A. S. B.* xi, p. 110 (1842).

Ichthyaetus leucogaster, *Gray, Cat. Acciptr.* 1844, p. 13; *Gould, B. Austr.* i. pl. 3 (1848); *Diggles. Orn. Austr.* pt. 5 (1866).

Pontoaetus leucogaster, *Gray, Gen. B.* i. p. 18 (1845).

Pontoaetus blagrus, *Gray, Gen. B.* i. p. 18 (1845).

Cuncuma leucogaster, *Gray, Cat. Accipitr.* 1848, p. 24; *Wall, Ibis*, 1868, p. 15; *Wald. Tr. Z. S.* viii. p. 35 (1872).

Blagrus leucogaster, *Blyth, Cat. B. Mus. A. S. B.* p. 30 (1849).

Ichthyaetus blagrus, *Blyth, J. A. S. B.* xi. p. 116 (1849).

Polioaetus leucogaster, *Gould, Hand-bk. B. Austr.* i. p. 13 (1863).

Young. Brown above all the feathers, margined at the tips with lighter brown, shafts dull brown, the nape and hind neck sometimes tinged with tawny, back and rump of a darker dull brown, the feathers tipped with whitish-brown; wings dark brown, feathers margined at the tips with whitish-brown; shoulders and smaller wing-coverts margined with whitish; primaries dull brown, blackish brown at the tips, white freckled with dark brown at the base, especially on the inner webs; secondaries becoming whitish at the base, more extensively on the inner webs, and freckled with brown; head and neck dull brown, sometimes tinged with tawny, streaked with brownish white down the centre of each feather, shafts blackish; throat buff; under surface rufous-brown, each feather centred with a streak of buff, and tipped with buffy white; flanks, abdomen, and under tail-coverts buff, freckled with brown; legs brown with a broad shaft stripe of deep buff; axillaries and under wing-coverts buff; base of the primaries and their coverts white, freckled with brown; under surface of shoulders dull brown, margined with deep buff; tail beneath white freckled with dark brown and tipped with white; above white, freckled with brown and becoming darker brown near the ends, which are margined and tipped with white, base white; upper tail-coverts similarly marked to the tail, but of a lighter brown.

Progress towards maturity. The throat, abdomen, flanks, and under tail-coverts become white first; the chest retaining its brown markings until about the third year, when a broad central line of white, with a brown or black hair line down the shaft, appears; the white and brown markings of the body above grow out and change to ashy-grey, which increases and becomes darker in tint each year until the basal portion of the tail and the tips of the primaries past the notch become in the adult almost black; the brown on the terminal third of the tail becomes freckled, and lastly white, like the head and neck; in some apparently adult birds there is a hair line of black or brown down the shaft of many feathers on the chest, head, and neck.

Adult female. The whole of the head and neck, and all the under surface of the body and under wing-coverts white, some of the lateral wing-coverts shaded with ashy grey on the outer webs, the greater coverts, ashy grey becoming white at the base,

and shaded with white along the margins and at the tips; remainder of the under surface of the wings ashy grey, the primaries shaded with a blackish tinge towards the tips, and the secondaries shaded with white at the tips; tail ashy black towards the base, the terminal third being white; the inner webs on the under surface mottled with white, and the extreme base white; under tail-coverts white, concealing the ashy black basal portion; the upper surface of the body and wings ashy grey; the tips of the primaries blackish, and upper tail-coverts dark ashy grey; the basal portion of the tail above ashy black; the secondaries slightly margined at the tips with ashy white; iris yellowish brown; cere, lores, and base of the bill, lead-colour, culmen greenish brown; feet yellowish; claws black. Total length 30 inches, wing 23·8, tail 11·7, tarsus 4·1, bill 2·4, culmen 3·0, middle toe 3·0, hind toe 1·6.

Adult male. Is the same in plumage, but slightly smaller in size. Total length, 28·5 inches, wing 22·3, tail 10·5, tarsus 4·0, bill 2·0, culmen 2·6, middle toe 2·9, hind toe 1·6.

Measurements of Adults and Young.

Sex and total length.	Wing.	Tail.	Tarsus.	Bill.	Culmen.	Mid. Toe.	Hind Toe.	Locality, &c.
Inches.								
♂ 27·5	23·	10·5	4·0	2.	2·6	2·9	1·6	Gayndah, Burnet River, Queensland. *Adult.*
♀ 30·	23·8	11·7	4·1	2·4	3·0	3·0	1·6	Port Macquarie, N.S.W. *Adult.*
♂ 26·5	22·7	10·6	3·9	2·0	2·6	2·8	1·6	N. S. Wales. *Adult.*
♂ 28·5	22·3	11·2	3·7	2·1	2·6	2·5	1·6	*Adult.* Wide Bay, Queensland.
♂ 28·3	23·5	13·0	3·8	2·15	2·6	2·7	1·6	*Young in half plumage.* N.S.W.
? 28·7	22·7	11·6	4·	2·1	2·7	2·9	1·7	*Young.* Wide Bay, Queensland.
♀ 30·3	23·6	12·3	4·	2·1	2·6	2·8	1·6	*Young.* Port Macquarie, N. S. Wales.

A. 1	♂	ad. sk.	Burnett River, Queensland.
A. 2	♂	ad. sk.	Wide Bay, Queensland.
A. 3	♀	ad. mntd.	Port Macquarie, N. S. W.
A. 4	♂	ad. mntd.	New South Wales.
B. 1		semi-adult, sk.	Wide Bay, Queensland.
B. 2	♂	semi-adult.	Port Macquarie, N. S. W.
B. 3	♀	semi-adult, mtd.	Pt. Macquarie, N. S. W.

6. HALIASTUR.

	Type.
Haliastur, *Selby, Cat. Gen. et Subgen. Typ.* p. 3, 1840...	H. indus.
Dentiger, *Hodgs. in Gray's Zool. Misc.* p. 81, 1844 ...	H. indus.
Ictinoaetus, *Kaup. Contr. Orn.* 1850, p. 73	H. indus.
Milvaquila, *Burm. Verz. Zool. Mus. Halle*, p. 24, 1850	H. indus.

Birds of smaller build, but characters similar to Haliaetus, nostrils almost circular, having a bony margin all round; tarsi are covered with large transverse oblique scales, and with irregular hexagonical scales posteriorly, the sides covered with smaller ones.

Range.—Indian Peninsula and Ceylon, the Malayan Archipelago, and the whole of Australia and New Caledonia.

1. Haliastur Indus.

Subsp. β—**Haliastur girrenera.**

The Red-backed Fish-hawk.

Falco ponticerianus, *Shaw & Nodd. Nat. Misc.* x. pl. 389, (1799).

White-headed Rufous Eagle, *Lath. Gen. Hist.* i. p. 218, (1821).

Haliaetus girrenera, *Vieill. & Oud. Gal. Ois.* i. pl. x. (1825).

Haliaetus leucosternus, *Gould, P. Z. S.*, 1837, p. 138; *id. Syn. B. Austr.* iii. pl. 3 fig. 1 (1838).

Haliastur leucosternus, *Gray Gen. B.* i. p. 18 (1845); *Gould B. Aust.* i. pl. 4 (*c.* 1845); *id. Hand-book B. Austr.* i, p. 17 (1865); *Diggles, Orn. Aust.* p. 17 (1870); *Walden, Tr. Z. S.* viii. p. 35 (1872); *Gray, Hand-l. B.* i. p. 18 (1869).

Ictinoaetus leucosternus, *Kaup, Contr. Orn.* 1850, p. 73.

Haliaetus indus, *Schl. Vog. Nederl. Ind. Valkv.* p. 51, pl. 4, fig. 3 (1866).

Haliastur indus, Subsp. β. H. girrenera, *Sharpe, Brit. Mus. Cat. Acc.* vol. i, p. 315 (1874).

Young.—Head and neck dull creamy white, washed with brown at the base and along the margins of the feathers, giving to these parts a striped appearance; face brown; throat and chest whitish; breast light rufous brown, streaked with ashy white down the centre of each feather; abdomen, thighs, and under tail-coverts dull white, margined with light rufous brown; primaries blackish brown, secondaries washed with rufous, becoming white at the tips; tail rufous brown, tipped with whitish.

Adult female. Similar to the male, but slightly larger. Total length 21 inches, wing 15·5, tarsus 2·3, tail 8·6.

Adult male. The whole of the head, neck, chest, and breast snowy white, the tips of the primaries above past the notch black, below black, shaded in certain lights with brown along the shaft, which is white at the base; tips of the tail above white,

which extends more over the centre two and adjacent feathers, the outer two on either side with no white, the next to them with only a wash white round the margin of the tips, under surface of the tail, except the afore-mentioned white tipped portions light cinnamon red; the secondaries and base of the primaries rich cinnamon red; the remainder of the upper and under surface bright, rich, deep chestnut (or deep maroon chestnut); cere, legs, and feet yellow; bill light horn colour, bluish lead-colour at the base. Total length 18·5 inches, wing 15·3, tail 7·7, tarsus 2 inches.

Habitat. The whole of the northern portion of Australia, and the eastern as far south as the Clarence River, extending inland about to the coast range.

Remark. In some specimens the primary coverts above, nearest the margin of the shoulders have a black shaft stripe and remains of black cross bars, the latter also are noticeable on the inner webs of some of the inner primaries and inner secondaries, and on the tail feathers. The plumes covering the flanks, and the feathers at the upper joint of the thighs also, are occasionally white, as well as the small feathers at the base of the scapulars; the smaller scapulars have occasionally black shaft lines and also transverse bars of black on their concealed portions, basal portions white. These facts will assist in bearing out Mr. Sharpe's opinion, with which I entirely coincide, that the Australian bird (*Haliastur girrenera*) cannot be admitted to hold full specific rank, but with *Haliastur intermedius* (Gurney) must be considered a fixed variety of the Indian fish hawk (*Haliastur indus*).

Measurements of Adults.

Sex, and total length.	Wing.	Tail.	Tarsus.	Bill.	Culmen.	Mid. toe.	Hind toe.	Locality, &c.
Inches								
♂ 18·	15·6	8·	2·	1·4	1·7	1·4	·8	Port Denison, Queensland.
♂ 17·5	15·6	8·	2·	1·4	1·7	1·35	·9	„ „
♀ 19·5	15·6	9·	2·1	1·45	1·7	1·5	·9	„ „
♀ 19·5	16·	9·	2·1	1·5	1·8	1·4	1 nr	„ „

A 1	♂	ad. sk.	Port Denison, Queensland.	
A 2	♂	ad. mntd.	„	„
A 3	♀	ad. mntd.	„	„
A 4		ad. mntd.	„	„

2. Haliastur sphenurus.

Brown Fish-Hawk, Whistling Eagle.

Cinereous Eagle, var., *Lath. Gen. Syn. Supp.* p. 18 (1801).

Milvus sphenurus, *Vieill. N., Dict. d' Hist. Nat.* xx. p. 564 (1818); *id. et Oud. Gal. Ois.* i. pl. xv. (1825).

Haliaetus canorus, *Vig. & Horsf. Tr. Linn. Soc.* xv. p. 187 (1826); *Gould, Syn. B. Aust.* pt. iii. pl. 3. fig. 2 (1838).

Haliastur sphenurus, *Gray, Gen. B.* i. p. 18 (1845); *Gould, B. Austr.* i. pl. 5 (c. 1845); *id. Hand-bk. B. Austr.* i. p. 20 (1865); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 316 (1874).

Ictinoaetus canorus, *Kaup, Contr. Orn.* 1850, p. 73.

Haliaetus sphenurus, *Schl. Mus. P.*—B. Aquilæ, p. 21 (1862).

Remarks. The following description of what appears to me to be a fully adult but not a very old bird, will be found to agree with the stage of plumage in which full grown birds of this species are usually obtained.

Adult female. General colour dull ashy brown, shaded with fulvous and dark brown; primaries blackish; the whole of the head and neck dull brown tinged with rufous, chiefly down the centre of the feathers, with the shafts black, giving a streaked appearance; sides of the face and throat light brown, the bases of the feathers darker; chest, breast, and abdomen dull fulvous brown, with blotches of dull white or fulvous near the centre of feathers on either side of the shaft, and a stripe of dull white down the tip which is sometimes washed with fulvous; on those parts nearest the abdomen the stripes are narrower and the blotches larger and more conspicuous; flanks fulvous brown, bases of the feathers white; thighs dull fulvous with a dark brown shaft-stripe, and irregular cross-bars; under tail-coverts fulvous crossed with irregular broken bars of dull deep brown; tail below ashy brown, washed with fulvous on the inner webs and freckled with dark brown; tail above dark brown washed with ashy on the outer margins and tips, and freckled with light rufous at the base; inner webs fulvous, shaded at the tips and thickly freckled and crossed with irregular broken bars of dark brown on the body of the feathers; upper tail-coverts, rump, and back, dull brown, the feathers white at the base; margins of the shoulders and the under wing-coverts white at the base, becoming ashy-brown, crossed with dark brown bars, and largely tipped with deep fulvous; shaft-stripe black; primaries above black, the outer and the inner webs near the base rich sepia brown. The basal marginal half of the inner two primaries and outer two secondaries light rufous barred with dark brown; remainder of the feathers dark brown, lighter at the tip, outer web sepia brown; secondaries deep sepia brown, with rich metallic lustre, inner webs from near the tips light rufous barred

and freckled with dark brown; median and primary coverts similarly coloured, remainder of the upper wing-coverts dark brown, some on the shoulders washed with pale rufous, all margined or tipped with ashy white, fulvous, or light rufous, and having a brownish black shaft-stripe; scapulars deep sepia-brown, smaller ones margined and tipped with ashy-brown, all washed, freckled or barred with pale rufous, which predominates on the concealed portion of the feathers, where also the brown forms irregular bars; extreme base, white; under surface of the wing quills are ashy-brown, all, except the outer primaries which are whitish at the extreme base, more or less freckled or barred with light rufous; cere bluish grey; bill dark horn brown, lighter on the sides; feet and legs bluish grey; iris, rich hazel.

Total length 22 inches, wing 16·9, tail 10·7; tarsus 2·3, bill 1·5, culmen 1·8, culmen without cere 1·35.*

Adult male. Similar in plumage to the female, but not so large Total length 20·5 inches, wing 15·5, tail 10·5, tarsus 2·25, bill 1·3, culmen 1·6, without cere 1·3.

Young. Similar to the above description, but having the wing-coverts and most of the feathers of the upper surface tipped largely with ashy or fulvous white, a well defined blackish shaft-line on all the feathers, and those of the head and neck washed with rufous; on the back of the neck the feathers are crossed with irregular dark brown bars, the bases of all being white; the under surface is of a lighter dull fulvous-brown, blotched and striped with fulvous white.

Habitat. The whole continent of Australia, and New Caledonia.

Specimens from New Caledonia are often of a much lighter colour, especially on the upper portion of the head, neck, and scapulars.

A. 1 ♀	ad. sk.	New South Wales.
A. 2 ♂	ad. sk.	Wide Bay, Queensland.
A. 3 ♀	ad. mntd.	New South Wales.
A. 4	ad. mntd.	New Caledonia.
B. 1 ♀	semi-ad. sk.	King George's Sound.

* Note.—Not having met with any specimen in such adult plumage as that described and figured by Mr. Gould, whose description has evidently been taken from a very old bird, I transcribe it here verbatim :—"Head, neck, and all the under surface light sandy brown, each feather margined with a darker colour; feathers of the back and wings brown, margined with grayish white; primaries blackish brown; tail greyish brown, rather long and rounded at the end; cere and bill brownish white, gradually becoming darker towards the tip; legs bluish white; irides hazel." (*Gould, Bds. Aust.*, vol. i, pl. 5.)

7. MILVUS.

Type.

Milvus, *Cuv. Leç. Anat. Comp.* i. tabl. *Ois.* (1800)..... M. regalis.
Hydroictinia, *Kaup, Classif. Säug. v. Vög.* p. 115 (1844) M. migrans.
(M. korschun.)

Bill laterally compressed, the culmen straight at the base, from thence much curved to the tip which is acute, the lateral margins somewhat straight or only slightly curved, the nostrils oval, placed rather obliquely in the cere; *wings* very long, the third and fourth quills longest; *tail* long, broad, rounded or more or less forked at the end; *tarsi* short, plumed at the base anteriorly, the remaining part covered with scales transverse in front reticulate behind; *toes* rather short, the outer united at its base to the middle toe, claws comparatively short and curved.

1. Milvus affinis.

The Australian Kite.

Milvus affinis, *Gould, P. Z. S.* 1837, p. 140; *id. Syn. B. Austr.* pt. iii. (1838); *id. B. Austr.* i. pl. 21 (1848); *id. Hand-bk. B. Austr.* i. p. 49 (1865); *Gray, Gen. B.* i. p. 24 (1845); *id. Hand-l.* B. i. p. 27 (1869); *Wald. Tr. Z. S.* viii. p. 36 (1871); *Bp.* Consp. i. p. 21 (1850); *Schl. Mus. P.—B. Milvi*, p. 3 (1862); *id. Vog. Nederl. Ind. Valkv.* pp. 30, 67, pl. 20 fig. 1 (1866); *Diggl. Orn. Austr.* pt. 1 (1866); *Wall, Ibis*, 1868, p. 13; *Sharpe, Brit. Mus. Cat. Acc.* i. p. 323 (1874).

Adult male. All the upper surface blackish brown, the median wing-coverts and margins of the feathers being lighter, the shaft-stripes blackish; primaries and secondaries blackish brown, the first six primaries black at the tips, the remainder and the inner secondaries slightly margined with light brown, indistinct bars of blackish brown showing on the inner webs of all the quills; the inner webs of the outer series of the wing-coverts, of a few of the innermost secondaries, and of the scapulars, becoming white at the base and barred with dark brown; wing-coverts brown barred with blackish brown, base of the feathers white; back, rump, and upper tail-coverts dark brown fading into a little lighter brown on the margins, the bases white, shaft-stripes blackish brown; tail slightly forked, dark brown above indistinctly barred with blackish, the inner webs becoming lighter towards the base, and freckled with dark brown; under surface of the tail ashy brown freckled and barred with darker brown; under tail-coverts rufous brown, with blackish shaft-lines; the head and neck above brown washed with rufous and streaked with blackish shaft-lines; lores and ear-coverts dark brown, the latter tinged with rufous brown; chin whitish; the throat light rufous brown, remainder of the under surface of the body dull rufous brown darker on the chest, sides, and flanks, all the feathers having a blackish shaft-line; under wing-coverts rufous brown striped with blackish down the

centre, the outer series, and the bases of the primaries ashy, irregularly shaded or barred with dark brown; quills blackish brown the inner webs especially, towards the base lighter; bill black; base and cere yellowish; feet and legs yellowish; iris hazel. (*Mus. Dobroyde.*)

Total length 19·5 inches, wing 15·8, tail (*to tip of outer feathers*) 10, tarsus 2·1, middle toe (without claw) 1·6, inner toe 0·9, outer 1·15.

Adult female. Similar to the male in size and coloration.

Young. The young may be distinguished by all the feathers being tipped with rufous, the head and neck rufous margined with brown and striped with blackish shaft-lines; under surface brown striped with rufous down the centre of the feathers, shaft-lines blackish, throat and sides of the face rufous brown, lores, region of the eye, and upper portion of the ear-coverts blackish.

B. 1 Semi-adult. New South Wales.

8. LOPHOICTINIA.

Type.

Lophoictinia, *Kaup, Isis*, 1847, p. 117 ..... L. isura.

Characters chiefly as in *Milvus*, but differing in having the bill more compressed towards the tip and longer; distance between angle of mouth and anterior margin of nostril equal to the distance from thence to tip of bill; no transverse scales on the tarsi in front; wings very long.

Range of habitat, Eastern, South, and South-west Australia.

1. Lophoictinia isura.

The Crested Kite, Square-tailed Kite, &c.

Milvus isurus, *Gould, P. Z. S.*, 1837, p. 140; *id. Syn. B. Austr.* iii. (1838); *id. B. Austr.* i. pl. 22 (1848); *id. Hand-bk. B. Austr.* i. p. 51 (1865). *Gray, Gen. B.* i. p. 24 (1845); *Bp. Consp.* i. p. 21 (1850); *Schl. Mus. P.–B.* Milvi, p. 4 (1862). *Gray, Hand-l.* B. i. p. 27 (1869).

Lophoictinia isura, *Kaup, Isis*, 1874, p. 117; *Sharpe, Brit. Mus. Cat. Acc.*, vol. i. p. 326 (1874).

Milvus pacificus, *Strickl. Orn. Syn.* p. 135 (1855).

Adult female. The feathers of head and nape elongated into an occipital crest; forehead whitish buff; sides of the face, chin, and ear-coverts greyish white, the terminal portion of each feather and the shaft-line black; those on the crown of the head, nape,

and hind neck rich light rufous, broadly centered with blackish-brown, the basal portions of all the feathers being white; throat buffy-white, a broad stripe of dark ashy brown margined with rufous, down the centre of each feather; sides of the neck, hind neck, and all the under surface rich rufous, being lighter on the flanks, each feather having a black shaft-line, and a broad stripe of black down the centre, washed with ashy on the sides of the neck and chest, and narrowing into a shaft-line of black on the lower portion of the breast and flanks; abdomen rich rufous; the breast, centre of abdomen, and flanks, mesially shaded or faintly barred with ashy-brown on the concealed portions of the feathers; thighs, lower part of abdomen, and under tail-coverts rich rufous, paler in tint on the latter, with shaft-lines of a deeper rufous tint; the extreme base of all the feathers on the under surface snow-white; under surface of the tail ashy-brown, becoming ashy-white towards the base, indistinctly barred near the end with blackish brown; tail above dark brown, washed with ashy on the outer webs; margins of the inner webs fading into ashy-white, freckled with brown at the base, crossed with a few indistinct bars of brown which are wider and become blackish brown at the tips; tips narrowly margined with white; upper tail-coverts and rump dark brown, back and interscapular region darker brown; primaries brown, washed with ashy; the tips darker, base white, and the basal marginal two-thirds of the inner webs as far as the notch white; secondaries dark ashy brown, becoming white freckled with brown at the base of the inner webs; all the feathers banded with blackish brown, the last band broader and darker on the tips of primaries and secondaries, where they form a sub-terminal blotch; median and greater wing-coverts dull brown, mesially shaded with darker brown, and washed with fulvous brown on the margins; remainder of the wing-coverts above brown, shaded with blackish brown at the tips, bases snow-white; under surface of the primaries ashy-brown, with blackish brown bars, basal portion of the inner margin white; secondaries ashy-brown, becoming white at the base, bars on all the quills showing through; under coverts of primaries and secondaries ashy-white, shaded and barred with ashy-brown, darkest at the tips, where some are washed with pale rufous; remainder of the under coverts and the axillaries rich rufous, mesially shaded towards the base with ashy-brown, shafts blackish; small marginal feathers of the wing light rufous, edged with buff at the tips; cere and base of the bill flesh-white, blackish at the tip; legs and feet greyish flesh colour, iris yellow. Total length 22 inches; wing 19·9; tail slightly forked, central feathers 10·3, outer 10·9; tarsus 2·0, bill 1·9, culmen without cere 1·1; from the angle of the mouth to the base of anterior margin of nostril 0·95, from thence to tip of bill 0·95.

Those specimens I have examined show very little variation in colouring; the flanks are in some a little paler, and occasionally washed with ashy-brown, and the median wing-coverts in some incline to fulvous or pale rufous on their margins; wings very long, extending beyond the tip of the tail.

Young. Not so bright in the rufous colouring of the chest and abdomen; the blackish markings on the tips of the feathers duller brown, flanks lighter, tail more distinctly barred, no ashy-grey on cheeks and sides of the neck.

Habitat. The whole of the eastern, southern, and south-west portion of Australia.

A. 1. ♀ ad. sk. Gayndah, Burnet River, Queensland.

9. GYPOICTINIA.

Type.
Gypoictinia, *Kaup, Contr. Orn.* 1850, p. 61 ..... G. melanosterna.

1. Gypoictinia melanosterna.*

The Black-breasted Buzzard.

Buteo melanosternon, *Gould, P.Z.S.* 1840, p. 162 *id. B. Austr.* i. pl. 20 (1848); *Gray, Gen.* B., i. p. 12 (1849); *id. Hand-l. B.* i. p. 7 (1869).
Gypoictinia melanosternon, *Kaup, Contr. Orn.* 1850, p. 61.
Gypoictinia leucosternon, *Kaup, Arch. f. Naturg.* 1850, p. 33.
Gypoictinia melanosterna, *Sharpe, Brit. Mus. Cat. Acc.*, i. p. 335 (1874).

Male. "Above blackish, browner on the scapulars, lower back, and rump, the latter parts washed with rufous, some of the feathers lighter-edged; smaller wing-coverts ashy-grey, each feather blackish in the centre, the rest of the wing-coverts black, the inner ones washed with rufous; quills black, the secondaries ashy-grey towards their tips; primaries externally ashy-white at base, the outer ones shaded with grey; primaries underneath white at base, black towards the tip, the secondaries greyish below; upper tail-coverts black, outer ones washed with rufous; tail ashy-grey above, paler below, and inclining to white near the base; head crested, the fore part of the crown black, the hinder part and the nape, as well as the sides of the neck, tawny rufous, some of the feathers black in the centre, producing a striped appearance; cheeks, ear-coverts, and entire under surface, black, some of the flanks and abdominal feathers inclining to ashy; thighs and under tail-coverts rufous, with black shaft-lines; under wing-coverts blackish, the small ones varied with white, and some washed with rufous. Total length 24 inches, culmen 2·45, wing 19·, tail 8·5, tarsus 2·65, middle toe 1·95."—*Brit. Mus. Cat., Accip.* i. p. 335 (1874).

* This is the only Australian species of which we have no example in the Museum.

10. ELANUS.

Type.
Elanus, *Sav. Syst. Ois. d'Egypte*, p. 274 (1809) ..... E cœruleus

Bill short, very broad at the base, and compressed towards the tip, which is hooked and acute, the nostrils large and sub-oval. *Wings* very long, pointed, and reaching beyond the tail, with the second quill the longest. *Tail* long, slightly emarginated. *Tarsi* short, nearly the length of the middle toe, with the basal part plumed, and the remainder covered with reticulated scales. *Toes* moderate, broad, and free at the base, with the outer much shorter than the inner toe; the claws strong and curved.

Range. "The whole of Africa, including the countries bordering the African side of the Mediterranean; Indian Peninsula, Indo-Malayan Islands, Celebes, and Australia; Southern States of North America, and the whole of Central and Southern America."—*Brit. Mus. Cat. Acc.*, i., p. 336 (1874).

1. Elanus axillaris.

The Black-shouldered Kite.

Axillary Falcon, *Lath. Gen. Syn. Supp.* ii. p. 43 (1801).

Falco axillaris, *Lath. Ind. Orn. Suppl.* i. p. ix (1801).

Circus axillaris, *Vieill. N. Dict. d'Hist. Nat.* iv, p. 453 (1816).

Elanus melanopterus, *Vig. & Horsf., Trans. Linn. Soc.*, xv. p. 185 (1827).

Elanus notatus, *Gould, P.Z.S.* 1837, p. 141; *id. Syn. B. Austr.* pt. 4. (1838).

Elanus axillaris, *Gray. Ann. N. H.* xi. p. 189 (1843); *id. Gen. B.* i. p. 26, pl. 9, fig. 5 (1845); *Gould, B. Austr.* i. pl. 23 (1848); *id. Hand-bk. B. Austr.* i. p. 53.—*Ramsay, P.Z.S.* 1867, p. 393; *Sharpe, Brit. Mus. Cat. Acc.*, vol. i. p. 338 (1874).

Adult female. Forehead white, becoming bluish-grey on the crown of the head, all the upper surface light silvery bluish-grey, becoming almost white on the outer webs of the tail-feathers, pure white on the inner webs and on the under surface; the whole of the under surface of the body snow-white, with a faint shade of silvery grey on the flanks and sides of the chest; wing-coverts (shoulders), except the largest series, black; wing bluish silvery grey, darker on the primaries, which are darkest at the tips; under surface of primaries dark bluish-grey, inclining to blackish on the outer quills; inner series of the primary coverts black, remainder dark bluish-grey, shaded with blackish on margins, small feathers under spurious wing, at base of upper primary coverts black; margins of the wing and rest of the under

wing-coverts and axillaries snow-white; under surface of the secondaries and scapulars white, with a faint shade of bluish grey; lores, and a narrow line over the eye black; bill and claws black; cere citron; legs and feet yellow; iris varying from deep carmine to blood-red. Total length* 13·4 inches, expanse of wings 37·7, wing from flexure 12, tail 6, tarsus 1·5, tibia 2·8, mid-toe 1·2, outer toe 0·75, inner toe 0·8, hind toe 0·75, bill from posterior base of cere 0·9, culmen 1·1, bill from nostril 0·6, from anterior margin of cere 0·8, from angle of the mouth to tip of bill 1·3, shield over the eyelid 0·45 × 0·2.

Adult male. Similar to the female in plumage, and equal in size.

Young. Resembling the adult, but having the crown of the head and all the upper surface of the body brown, washed with pale rufous on the sides of the neck, scapulars and adjacent wing-coverts, rump, and upper tail-coverts; the chest washed with pale rufous at the tips of the feathers, which are centered with a narrow shaft stripe of dark brown; shafts of the wings above dark brown, those of the tail feathers almost black; of both the wings and tail below white, except those of the primaries, which are brown; the two centre tail-feathers and outer webs of the rest ashy brown, tips and remainder of the tail feathers white; wings ashy brown, darker towards the tips of the primaries; secondaries and greater wing-coverts largely tipped with white, those parts of the wing above black in the adult are of a blackish brown, many of the feathers margined with white; under surface of the primaries and the larger series of their coverts ashy brown, becoming white freckled with brown on the margins of the inner webs; a small blackish brown patch at the base of primaries; margins of the shoulders white.

Habitat. The whole of Australia.

A. 1 ♀ ad. sk.	Sydney, N.S. Wales. B. Johnstone, Esq. Pres.
A. 2 ♂ ad. sk.	Shoalhaven, N.S. Wales.
A. 3 ♂ ad. sk.	N.S. Wales.
A. 4 ♀ ad. mntd.	N.S. Wales.
A. 5 ♂ ad. mntd.	Bathurst, N.S.W. Alex. Johnson, Esq. Pres.
A. 6 ♀ ad. mntd.	N.S. Wales.
A. 7 ♂ ad. mntd.	N.S. Wales.
B. 1. ♂ semi-ad. sk.	N.S. Wales.
B. 2 ♀ semi-ad. sk.	N.S. Wales.
C. 1 juv. mntd.	Sydney, N.S.W.
C. 2 juv. mntd.	N.S. Wales.

* Measured in the flesh, adult ♀; plumage of freshly shot individuals mealy.

2. Elanus scriptus.

Letter-winged Mouse-Hawk, Letter-winged Kite, &c.

Elanus scriptus, *Gould, P.Z.S.* 1842, p. 80; *id. B. Austr.* fol. vol. i. pl. 24 (1848); *Gray, Gen. B.* i. p. 26 (1845); *Gould, Handbook B. Austr.* i. p. 55 (1865); *Bp. Consp.* i. p. 26 (1850); *Gray, Hand-list B.* i. p. 28 (1869); *Sharpe, Brit. Mus. Cat. Acc.* vol. i. p. 340 (1874).

Adult female. Above delicate ashy white, forehead, sides of the face, margins of the shoulders and of the wings, and the whole of the under surface, pure white, spot on the lores and narrow ring round the eye black; shoulders above and all the upper wing-coverts, except the largest series, black; small feathers at the base of the primaries concealed by the spurious wing, black; greater wing-coverts ashy grey, secondaries light ashy grey fading into white at the tips and inner margins, primaries and primary-coverts ashy grey washed with ashy brown, becoming white on the margins of the inner webs, their shafts brown; scapulars light ashy brown above, white beneath; centre two tail feathers and outer webs of next two on either side ashy white, remainder of the tail feathers above, the shafts, and all below pure white; axillaries and all the under wing-coverts, except the larger series, black (which following the line of the wing-bones forms a black v-shaped mark); the larger series of the wing-coverts and those at the base of the primaries ashy grey, under margin of the wing white. Cere and feet yellow; bill black; iris orange red. Total length 14·5 inches, wing 12·2, tarsus 1·6, tail 7, bill 1, culmen 1·1.

Adult male. In plumage the same as the female, in size slightly smaller. Total length 13·5 inches, wing 11·4, tarsus 1·4, tail 6·5, bill, 0·95, culmen, 1.

Young. Above ashy brown, the tips of all the feathers more or less margined with white, except those on back of the neck and interscapular region. Those parts of the wing black in the adult are of a blackish brown, margined with white near the primaries and on the shoulders. This specimen is of the same size as the adult male.

A. 1. ♂ ad. sk.	New South Wales.
A. 2. ♀ ad. sk.	Sydney, New South Wales. H. Newcombe, Esq., Pres.
B. 1. ♀ not quite adult. sk.	New South Wales.
B. 2. ♀ not quite adult. mntd.	New South Wales.

Subfamily FALCONINÆ.

Outer toe only connected to middle toe by interdigital membrane; tibia much longer than tarsus, but the latter not contained twice in the former; hinder aspect of tarsus reticulate; bill distinctly toothed.

Key to the Genera.

a. Nostrils oblique or linear ovals, with distinct over-hanging membrane.

a[1]. Bill with two distinct teeth; wings not reaching to the tail.

a[2]. A distinct occipital crest; no tubercle in nostril ..... BAZA.

b[2]. No occipital crest; a distinct central tubercle to nostril ..... HARPAGUS.

b[1]. Bill with only one tooth; wing reaching to tip of tail ..... ICTINIA.

b. Nostrils perpendicular ovals, with no overhanging membrane or central tubercle.

c[1]. Bare part of tarsus in front less than the outer toe ..... MICROHIERAX.

d[1]. Bare part of tarsus greater than outer toe and claw ..... POLIOHIERAX.

c. Nostrils round, with distinct central tubercle.

e[1]. Outer toe (without claw) longer than inner toe (without claw).

c[2]. Distance between tips of primaries and tips of secondaries, less than half the length of tail.

c[3]. Middle toe very short; the culmen (without cere) not contained twice in middle toe (without claw) ..... SPIZIAPTERYX.

d[3]. Middle toe very long, more than twice the length of culmen (without cere) ..... HARPA.

d[2]. Distance between tips of primaries and tips of secondaries more than half length of tail ... FALCO.

f[1]. Outer and inner toes (without claws) about equal in length.

e[2]. Distance between tips of primaries and tips of secondaries about equal to or less than half the length of tail.

e^3. Tarsus finely reticulate in front, not nearly twice length of middle toe ..... HIEROFALCO.

f^3. Tarsus transversely plated near base of toes, more than twice length of middle toe, without claw ..... HIERACIDEA.

f^2 Distance between tips of primaries and tips of secondaries greater than half the length of tail. [*Cerchneis.*] TINNUNCULUS.

Sharpe, Brit. Mus., Cat. Acc. vol. i. pp. 350, 351 (1874).

11. BAZA.

	Type.
Lophotes, *Less. Traité*, p. 96 (1831, *nec. Giorna*)	B. lophotes.
Baza, *Hodgs. I. A. S. B.* v. p. 777 (1836)	B. lophotes.
Avicida, *Sw., B. W. Afr.* i. p. 104 (1837).....	B. cuculoides.
Lepidogenys, *J. E. Gray*, 1839, *teste G. R. Gray, List. Gen. B.* p. 4, 1840*	B. lophotes.
Hytiopus, *Hodgs. J. A. S. B.* x. p. 27 (1841)	B. lophotes.
Lophastur, *Blyth, J. A. S. B.* xi. p. 464 (1842)	B. reinwardti.

Bill moderate, elevated at the base, which is broad, the sides compassed, culmen much arched, and the lateral margins furnished with two small teeth next the tip, the lower mandible also furnished with small teeth near the tip; the lores clothed with small feathers; the nostrils placed in the cere in the form of an oblong slit, no tubercle in nostril, which has a distinct overhanging membrane; wings lengthened, reaching *nearly* to the end of the tail, (4th) fourth and (5th) fifth quills nearly equal and longest; tail long, broad, even; tarsi thick and very short, longer than the middle toe, basal half plumed, the other part covered with small scales; toes thick, free to the base, the inner longer than the outer, the claws small and acute.

Range. Indian and Malay Peninsula and Islands, Ceylon, Molaccas, and islands to northern portions of Australia, West Coast of Africa and Natal.—(*Sharpe.*)

1. Baza subcristata.

The Crested Hawk.

Lepidogenys subcristatus, *Gould, P. Z. S.* 1837, p. 140; *id. Syn. B. Austr.* part iii. (1838); *id. B. Aust.* fol. i. pl. 25 (1848); *Pelz. Reis. Novara, Vög.* p. 8 (1865).

* Mr. Sharpe remarks "This generic name must have been in existence before this date, as Gould quotes it in 1837; but I cannot find where it was published."

Baza subcristata, *Gray, Gen. B.* i. p. 23 (1845); *Strickl. Orn. Syn.* p. 127 (1855); *Schl. Mus. P.—B.* Milvi, p. 4 (1862); *Gould, Hand-bk. B. Austr.* i. p. 56 (1865); *Ramsay, P. Z. S.*, 1867, p. 392; *Gray, Hand-l. B.* i. p. 25 (1869); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 357 (1874).

Avicida subcristata, *Lafr. Rev. Zool.* 1846, p. 127; *Bp. Consp.* i. p. 20 (1850); *id. Rev. et Mag. de Zool.*, 1854, p. 535.

Pernis subcristatus, *Kaup, Isis*, 1847, p. 343, *et Contr. Orn.* 1850, p. 77.

Adult. Head and neck ashy grey, darker on the crown and towards the occipital crest, which is almost black; scapulars, inner secondaries, and their coverts, and the remainder of the upper surface of the body brown; the wing-coverts interscapular region, tips of the outer scapulars, blackish slate; primaries and secondaries above very dark brown, becoming blackish on the outer webs, the base of their inner webs and their under surface light ashy grey (white in certain lights), narrowly margined with white at the base; all the quills broadly barred with black, the last bar the broadest, and forming a subterminal spot at the tip, which on the inner primaries and the secondaries is sometimes narrowly margined with white; bars on the basal portion of the under surface obsolete—or confined to the outer webs; tail ashy brown above, light ashy grey below, the basal half crossed with three interrupted black bands formed by a series of spots which are confined to the central part of the feathers, and not extending to the margins; the terminal half of the feather is crossed at the tip with a broad black band, which on the outer two feathers forms a subterminal blotch, the tips of these feathers more or less margined, and the outer ones broadly tipped with ashy white on the under surface, the shafts blackish above, white below; sides of the face, lores, throat, and chest ashy grey of a lighter tint than the neck; the breast, upper portion of the abdomen, and thighs, and the flanks, buffy white, washed towards the tips, with rufous and broadly barred with chestnut brown on the exposed portions, and dark ashy brown on the concealed portions of the feathers (*the chestnut brown bars consisting of a broad bar of dark ashy brown, centred and margined with a narrow bar of rufous chestnut*); the abdomen, lower half of the tibia, under tail- and wing-coverts rich rufous buff, the outer series of the under primary-coverts buff.

Bill black, iris bright yellow, cere and legs greyish yellow. Total length 16·6 inches, wing 13·6, tail 8·5, tarsus 1·5, bill from forehead 1·1, from cere 0·75, culmen 1·2.

The Female. Similar to the male in plumage and size, or perhaps a trifle larger.

Immature birds are of a lighter brown above than in the fully adult, occipital crest dark brown; throat buffy white; chest, sides of the neck, and dorsal feathers ashy grey, washed with pale

rufous; the breast and the remainder of the under surface buffy white, the bars narrower, and of a chestnut brown tint; abdomen, under tail- and wing-coverts buff; all the bars on the tail extend across the feathers, the bars near the base being dark brown, that at the tip broadest and blackish brown; the inner webs at the base are lighter and frequently freckled, and marked with spots of blackish brown, margined with white.

Young. "Above paler brown than in the adult, with narrow margins of ochraceous buff to the dorsal feathers and wing-coverts, becoming broader and more white on the inner secondaries; crown dark brown, as also the occipital crest, the white bases to the feathers rather conspicuous; forehead and sides of the face dusky cinereous, the former inclining to whitish; throat whitish; fore neck and chest buff, with a rufous tinge, which extends on to the sides and hinder part of the neck; breast buffy white, barred with rufous brown, much more narrowly than in the old bird; thighs and under wing- and tail-coverts rich buff, the former crossed near the base with a few narrow bars of rufous brown."—*Brit. Mus. Cat. Accip.* i. p. 358 (1874).

Hab. The whole of the north-eastern portion of Australia, from Cape York to the Clarence River.

A. 1 ♂. ad. mntd.	Port Denison, Queensland.
A. 2 ♀. ad. mntd.	N. S. Wales.
A. 3 ♀. ad. sk.	Pine Mountains, Queensland.
A. 4 —. ad. sk.	N. S. Wales.
B. 1 immature, sk.	Cape York. Mr. J. A. Thorpe. Pres.
B. 2 ♀. immature, sk.	Gayndah, Queensland.

12. FALCO. (Linnæus.)

	Type.
Falco, *Linn. S. N.* i. p. 24 (1766)	F. communis.
Tinnunculus, *Vieill. Ois. Amér. Sept.*, i. p. 39 (1807)	F. columbarius.
Hypotriorchis, *Boie*, *Isis*. 1826, p. 967	F. subbuteo.
Æsalon, Kaup, *Natürl. Syst.* p. 40 (1829)	F. regulus.
Dendrofalco, *Gray*, *List. Gen. B.* p. 3 (1840)	F. subbuteo.
Lithofalco, *Blasius*	F. regulus.
Gennaia, *Kaup*, *Isis*, 1847, p. 69	F. juggur.
Chicquera, *Bp. Rev. et Mag. de Zool.* 1854, p. 535...	F. chicquera.
Turumtia, *Blyth*, *Ibis*, 1863, p. 9	F. chicquera.

Bill short, strong, with the culmen much arched from the base to the tip, which is acute; the sides compressed, the lateral margins strongly toothed near the tip; the nostrils placed in a short cere, naked and rounded with a central tubercle; *wings* lengthened and acute, with the second and third quills the longest, and the first and second notched near the tip; *tail* long and

rounded; *tarsi* short, strong, covered with small irregular scales, and the tibial feathers covering the knee; *toes* lengthened and strong, the lateral ones unequal; the hind toe long, armed as well as the inner with a strong hooked acute claw.

1. Falco melanogenys.

The Black-cheeked Falcon.

Falco perigrinus, *Vig. & Horsf. Tr. Linn. Soc.* xv. p. 183 (1826); *Diggles, Orn. Aust.* part 20 (1868).

Falco melanogenys, *Gould, P.Z.S.* 1837, p. 139; *id. Syn. B. Austr.* pt. ii. (1838); *id. B. Austr.* vol. i. pl. 8 (1848); *id. Hand-bk. B. Austr.* i, p. 26 (1865); *Sharpe, Ann. N. H.* (4) xi. p. 224 (1873); *Gray, Hand-l, of B.* i. p. 19 (1869); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 385 (1874).

Falco macropus, *Swains. An. in Menag.* p. 341 (1837).

Falco communis, *Schl. Valkv. Ned. Ind.* pp. 2, 44. pl. i. fig. 2 (1866).

Adult male. The whole of the head, the nape, and the back of the neck, sides of the face, ear-coverts, and cheeks, extending to the sides of the throat, black; throat pale buff, almost white; chest creamy buff, deepening in tint towards the breast, where the feathers have a pale rufous shaft-stripe, and frequently a spot of black near the tip; the rest of the under surface buffy white, closely barred with narrow cross lines of black; the flanks, sides of the body, and thighs washed with bluish grey; the breast and central portion of the abdomen washed with pale rufous fawn, shaft-lines rufous fawn on the interspaces; axillaries and under wing-coverts light buff, barred with brownish black, and washed with bluish grey; the greater series and the under surface of the primaries, dark ashy brown, barred with buffy white; interscapular region black, having a few transverse obsolete bars of bluish ashy grey; the remainder of the upper surface bluish ashy grey barred with black and having a black shaft-stripe, which joining the bars, gives them a somewhat triangular form on the rump and upper tail-coverts; the bands on the tail broad, eleven to twelve in number, and increasing in size towards the tip where, being broadest, they take a triangular form; the tips of all the tail-feathers creamy white; the secondaries and inner primaries above narrowly margined with creamy white at the tips, the interspaces on the inner webs, towards the base, washed with buff; the primaries at the tips and on the outer webs black, on the inner brownish at the base, barred with rufous buff, the bars obsolete towards the tip, where they are washed with bluish grey nearest the shaft, and confined to the middle portion of the web; bill bluish green at the base, blackish horn-colour at the tip, lower mandible greenish yellow, bluish horn-colour at the tip; cere greenish grey; irides hazel; legs and feet greyish yellow; claws dark horn-colour. Total length 16·5 inches, wing 12·7, tail 6·7, tarsus 2·0, bill from gape 2·3, from forehead 2·1, culmen 1·2. (*Mus. Dobroyde.*)

Adult female. Similar in plumage to the male, but larger and more highly coloured; the under surface is washed with deep rufous fawn, being pale rufous on the chest and buff on the throat; the bars on the under surface are narrower, wider apart, and sometimes irregular. Total length 17 inches, wing 13·3, tail 7·5, tarsus 2·05; bill from forehead 1·1, from gape 1·35, culmen, 1·25.

Young. The young of both sexes somewhat resemble the adults, the under surface is of a more fawn-coloured or ferruginous hue from the chest downwards; the chest is streaked with dart-shaped markings, and the breast and abdomen with longitudinal markings of blackish brown; the flanks and thighs barred with bracket-shaped and the legs with hastate markings of the same colour; the axillaries and under wing-coverts are centred and barred with blackish brown; the upper surface is tinged with brown, the quills margined at the tips with buffy white, all the feathers of the body above margined with fulvous, more broadly on the wing-coverts, secondaries, and upper tail-coverts. (*Mus. Dobroyde.*)

A. 1 ♀ ad. mntd. Pennant Hills, N.S. Wales.

A. 2 ♀ ad. sk. N.S. Wales.

B. 1 ♀ semi-ad. sk. Port Lincoln, South Australia.

2. Falco hypoleucus.

The Grey Falcon.

Falco hypoleucus, *Gould, P. Z. S.* 1840, p. 162 (*descrip. origin*); *id. B. Austr.* fol. vol. i. pl. 7 (1848); *id. Handbk. B. Austr.* i. p. 24 (1865). *Sharpe, Brit. Mus. Cat. Acc.* i. p. 394 (1874); *Gray, Gen. B.* i. p. 19 (1844); *id. Hand-l. of B.* i. p. 18. (1869).

Gennaia hypoleucus, *Kaup, Contr. Orn.* 1858, p. 55.

Hierofalco hypoleucus, *Bp. Rev. et Mag. de Zool.* 1854, p. 536.

Adult female. All the upper surface bluish ashy-grey, all the under surface of a lighter ashy-grey tint, each feather having a blackish shaft-line down the centre, more conspicuous on the upper than on the under surface. Wings above have a more ashy tint on the margins of the coverts and secondaries, all the wing-feathers, scapulars, rump, upper and under tail-coverts and tail crossed with ashy-brown bars, darkest and more distinct on the tail and wings; tips of the tail-feathers margined with ashy white, the bars of the under surface of the tail of a browner tint, primaries above blackish brown, shafts lead-colour, the outer webs of the basal portion washed with bluish ashy-grey, inner webs ashy white, freckled with brown and crossed with triangular denticulations of a darker tint, running from the shaft and reaching nearly to the margin; secondaries ashy-grey, the margins of the inner webs ashy-white freckled with brown and barred like the primaries; the inner primaries and secondaries narrowly

margined with white at the tips; under surface of the wings and axillaries ashy white, with indistinct shaft-lines; the throat and abdomen and under tail-coverts are paler than the rest of the under surface of the body, and in some specimens almost white; the frontal line and sides of the face light ashy-grey; ear-coverts whitish, tinged with ashy-grey on the upper portions; a narrow line of black round the anterior portion of the eye, widening below it, formed by produced black shafts of feathers about the lores; irides hazel; orbits, legs and feet bright deep yellow; bill yellowish at the base, dark horn-colour at the tip. (*Mus. Dobroyde.*)

Total length 15 inches, wing 12·6, tarsus 1·8, tail 6·5, bill from forehead 0·9, from gape 1·1, culmen 1·1.

Adult male similar in plumage, but slightly smaller. Total length 12 inches, wing 11·1, tail 6·2, tarsus 1·75, bill ·85, from gape 1·1.

A. 1 ♀ ad. sk. North Australia.
A. 2 ♂ ad. mntd. Australia.

3. Falco subniger.

The Black Falcon.

Falco subniger, *Gray, Ann. Nat. Hist.* xi. p. 371 (1843); *id. Gen. B.* i. p. 19, pl. 8 (1844); *Gould, B. Austr.* fol. i. pl. 9 (1848); *Sturt, Exp. C. Austr.* ii. App. p. 14 (1849); *Bp. Consp.* i. p. 24 (1850); *Strickl. Orn. Syn.* p. 80 (1855); *Schl. Mus. P.-B.* Falc. p. 18 (1862); *Gray, Hand-l. B.* i. p. 18 (1869); *Diggles, Orn. Austr.* pt. 9 (1869); *Sharpe, Brit. Mus. Cat.* i. *Acc.* p. 394 (1874).

Hierofalco subniger, *Kaup, Contr. Orn.* 1850, p. 56; *Bp. Rev. et Mag. de Zool,* 1854, p. 536.

Adult female. The whole of the upper and under surface dark brown, becoming blackish brown on the upper surface and dull slaty-brown on the under surface of the primaries and secondaries; margins at the tips of the scapulars, inner primaries, and secondaries buffy white; inner webs of the primaries barred on the central portion and much freckled at the base with very pale rufous, the secondaries with a few spots of same tint near the base; the under-tail and primary-coverts spotted on either side of the shaft with oblong marks of buffy-white; tail crossed with indistinct broken bars of very pale rufous, and tipped with buffy white; on the chest and breast, and on some of the axillaries are a few scattered spots of pale rufous; the feathers of the throat, cheeks, and ear-coverts white, tipped with brown, giving them a mottled appearance; a narrow line over the eye, and from the lores a broad oblique short blackish stripe descends to below the ear-coverts on the side of the throat; bill lead-blue at the base, blackish at the tip and along the culmen; cere yellow; legs and feet yellowish, claws black.

Total length 20·5 inches, wing 15·7, tail 10, tarsus 2·2, bill from gape 1·4, from forehead 1·1, from nostril 0·8, culmen 1·2.

Adult male. Similar in plumage, but smaller than the females. Some specimens have no spots or bars on the under tail-coverts, and tail, and the chin alone white. Total length 18 inches, wing 14·3, tail 8·6, tarsus 1·9, bill from forehead 1, culmen 1·1, from gape 1·2.

A. 1 ♀ ad. sk. South Australia.

A. 2 ♂ ad. sk. South Australia.

4. Falco lunulatus.

The White-fronted Falcon.

Lunated Falcon, *Lath. Gen. Syn. Suppl.* ii. p. 54 (1801).

Falco lunulatus, *Lath. Ind. Orn. Suppl.* ii. p. xiii. (1801); *Strickl. Orn. Syn.* p. 89 (1855); *Gould, Hand-bk. B. Austr.* i. p. 29 (1865); *Schl. Revue Acciptr.* p. 39 (1873); *Sharpe, Brit. Mus. Cat. Acc.* i. p. 398 (1874).

Sparvius lunulatus, *Vieill. N. Dict. d'Hist. Nat.* x. p. 324 (1817).

Falco longipennis, *Sw. An. in Menag.* p. 341 (1837).

Falco frontatus, *Gould, P. Z. S.* 1837, p. 139; *id. Syd. B. Austr.* pl. 3, fig. 1 (1838); *id. B. Austr. vol.* i. pl. 10 (1848); *Schl. Vog. Nederl. Ind.* pp. 5, 146, pl. 2, figs. 4–6 (1866); *Digg. Orn. Austr.* pt. ii (1869).

Hypotriorchis frontatus, *Gray, Gen. of B.* i. p. 20 (1844); *Bp. Consp.* p. 25 (1850); *Kaup, Contr. Orn.* 1850, p. 55.

Falco subbuteo frontatus, *Schl. Mus. P.–B.* Falc. p. 22 (1862.)

Hypotriorchis lunulatus, *Wall. Ibis*, 1868, p. 5; *Gray, Hand-l. B.* i. p. 20 (1869).

Adult male. All the upper surface slaty-blue, being darkest on the shoulders and inter-scapular region; lightest and inclining to lead-colour on the back, rump, and upper tail-coverts, and of a dark brownish tinge on the head; lores and forehead white, or of a buffy hue; nape and adjacent feathers on the sides of the neck, tinged with rusty; sides of the neck, throat, and lower part of the ear-coverts white, occasionally tinged with rufous buff; cheeks, sides of the face, and upper parts of the ear-coverts, brownish black; chest, buffy-white washed with light rufous, becoming light rusty rufous on the remainder of the under-surface, deepest on the flanks, where faint greyish cross-bars appear; breast striped with shaft-lines of greyish brown; under surface of the wings dull rufous, lighter on the margins of the shoulders, and crossed with ashy brown bars; the outer series of the under wing-coverts and the axillaries ashy brown, tipped and spotted on both webs with pale rufous; primaries dark brown washed with slaty blue on the outer web, and barred with a

series of transverse oblong spots of pale rufous on the central portion of the inner webs; secondaries slaty blue barred like the primaries with light rufous; upper wing-coverts scapulars slaty blue, with a few oblong spots of light rufous near the base of the feathers—many of the wing-coverts, scapulars, and quills showing indistinct dark cross-bars; the tips of the secondaries and some of the inner primaries margined with white; the rump and upper tail-coverts light slaty blue with indistinct cross-bars, shaft-stripes dark brown; the two centre tail-feathers and the outer webs of all the rest, slaty blue barred with blackish brown, the inner webs barred alternately with blackish brown and rufous, the last brown bar the deepest in tint and forming a a broad subterminal blackish band; the tips of all the feathers rufous; lower part of the abdomen, and under tail-coverts, buff, shaded with rufous and having obsolete bars of ashy brown; orbits, cere, and base of the under mandible yellowish; bill bluish lead-colour, tip black; feet yellow; iris dark brown. Total length 11·2 inches, wing 9·7, tail 5·5, tarsus 1·35, bill 0·75, culmen 0·8.

Remark. The first primary is frequently margined on the outer web with a narrow wavy line of pale rufous; the forehead and lores, even in fully adult birds, and the nape and sides of the neck, tinged with deep rusty rufous.

Adult female. Similar in markings, but not so brightly tinted as the male and considerably larger. Total length 13·8 inches, wing 11·4, tail 6·1, tarsus 1·45, bill 0·8, culmen 0·9.

Young. "Above slaty blue, with broad rust-coloured margins to the feathers, the secondaries plainly tipped with buffy white; the crown and upper tail-coverts rusty, being quite obscured by the margins to the feathers; forehead whitish; fore part of cheeks, region of the eye, and ear-coverts brownish black; hinder part of cheeks, sides of neck and throat creamy white; chest creamy buff, tinged with rufous, with several dark brown streaks down the centre of the feathers; remainder of the under surface deep rufous; the lower abdomen, vent, and under tail-coverts tawny buff, with a few rufous shaft-stripes and bars; under wing-coverts dull rufous, with oval spots of creamy buff; primaries dark brown, tipped with whitish and barred on the inner web with rufous; tail greyish above, browner beneath, all the feathers barred across and tipped with rufous."—*Brit. Mus. Cat.* 1874. *Acc.* i. p. 399.

Habitat. The whole of Australia, Tasmania, and Flores.

Remarks. Not having a young specimen from N. S. W., the above description has been taken from the British Museum Catalogue. The following descriptions, however, are from a

fine series in the Australian Museum of the young, and adult female, from King George's Sound; but although differing in some respects from the New South Wales birds, they can scarcely lay claim to be considered a distinct species.

Specimen No. 1 *juv. K.G.S.*—Above slaty blue tinged with brown, tail dark brown tinged with ashy, the inner webs and the under surface dark brown, the central portion of the inner webs barred, and that of the outer spotted with rufous, the spots being obsolete on the two central and on the outer web of two external feathers, a few of the upper tail-coverts also spotted near the base with rufous; all the feathers of upper surface broadly tipped with rufous; feathers of the head and neck rufous, with a blackish brown shaft-line and base, giving a streaked appearance; forehead buff tinged with rufous; throat buff; sides of the neck and lower part of the ear-coverts buff washed with rusty rufous, deepest in tint behind the ear-coverts; lores, forepart of the cheeks, sides of the head, and ear-coverts brownish black; chest buff, rufescent on the breast, and becoming rufous on the remainder of the under surface, being lighter on the lower part of the abdomen and under tail-coverts, and deepest on the central portions, sides, and flanks; all the feathers centered with a shaft-line of brownish black, which widens into narrow stripes on the chest; the flanks crossed with ashy brown bars triangular in form, the axillaries and outer series of the under wing-coverts dark brown with oval spots of pale rufous; the remainder of the under wing-coverts brown, washed with rufous, and tipped and spotted with a lighter tint; primaries above blackish brown; secondaries washed with ashy; all the quills barred on the central portion of their inner webs with light rufous, and, with the primary coverts having the tips margined with buff narrowly edged with white; bill bluish horn-colour; culmen darker, lower mandible whitish, at the tip horn-colour; legs and feet flesh grey. Total length 12·3 inches, wing 9·7, tail 5·3, tarsus 1·55, bill 0·63, culmen 0·73.

Spm. No. 2 *juv.* Is similar in plumage, the stripes on the breast may be a trifle broader, the under surface is of the same deep rufous tint; and the flanks a little more distinctly barred, the rufous spots and bars on the tail are closer together but not continuous.

Spm. No. 3. This bird had apparently only just arrived in adult plumage, but the whole of the colouring is much brighter than in any other specimens I have examined. The whole of the upper surface is of a fine rich slate-blue, head and wings rich blackish brown; tail blackish brown washed with slaty blue on two central feathers, and outer webs of remainder tipped, and barred in most instances quite across the feather, with rufous the two central

feathers barred with slaty black, the interspaces near the base tinged with rufous; the cheeks, ear-coverts, and region of the eye, brownish black; forehead buff tinged with rufous; a few tawny feathers on the sides of the neck; throat white, lower parts tinged with rufous buff, all the feathers with blackish shaft-lines. All the under surface light rusty rufous deepening into rufous on the breast, sides, flanks, and thighs; down the breast are broad streaks of blackish brown, which alter into arrow-shaped markings having a slaty-blue tinge on the side, and irregular broad cross bands of the same tint on the flanks; on the abdomen and remainder of under surface the shaft-stripes are very narrow, but slightly swollen near the tips of the feathers on the legs; on the thighs they are occasionally hastate or arrow-shaped; the primaries and secondaries narrowly margined with white at the tips; bill bluish horn-color, blackish at the tip; lower mandible lighter at the base; cere bluish grey; feet flesh grey; claws black.

Measurement of Specimens from New South Wales, &c., &c.

	Total length.	Wing.	Tail.	Tarsus.	Bill.	Culmen.	Middle toe.	Its claw.	Hind toe.	Its claw.	Localities and Remarks, &c.
	In.										
♀	13·8	11·1	6·1	1·45	0·8	0·9	1·6	0·45	0·7	0·55	"Port Augusta, South Australia."
♀	14·	11·3	6 1	1·4	0·7	0·75	1·5	0·45	0·65	0·55	Port Denison.
♀	12·6	10·0	6·0	1·45	0·75	0·85	1·5	0·45	0·65	0·45	Clarence River, N.S.W.
♂ ?	11·5	10·7	5·5	1·45	0·75	0·85	1·5	0·45	0·65	0·45	Dark plumage, N.S.W., marked ♀, but probably ♂.
♂	11·5	9·6	5·4	1·35	0·7	0·75	1·35	0·5	0·55	0·5	Dark plumage, tail feathers spotted on outer webs with rufous.
											Specimens from King George's Sound, Western Australia.
	In.										
♀ ?	12·3	9·7	5·3	1·55	0·63	0·73	1·4	0·4	0·6	0·51	No. 1. "♂ *Feb.* 1866. *K.G.S.*"
♀	13·1	10·95	5·9	1·65	0·75	0·85	1·5	0·5	0·6	0·55	No. 2. "♀ *March*, 1866. *K.G.S.*"
♀	13·7	10·85	6·	1·6	0·8	0·9	1·55	0·52	0·61	0·5	No. 3. "♀ *April*, 1866. *K.G.S.*"

A. 1 ♀ ad. mntd.	Clarence River, New South Wales.
A. 2 „ „	New South Wales.
A. 3 ♂ „ „	„
A. 4 ♀ „ „	Port Denison, Queensland.
A. 5 ♀ „ „	Port Augusta, South Australia.
A. 6 ♀(?) „ „	New South Wales.
A. 7 ♀ ad. sk.	King George's Sound.—April, 1866.
C. 1 juv. sk.	King George's Sound.—Feb. 1869.
C. 2 „ „	„ „ „ March, 1866.

13. HIERACIDEA.

Type.

Ieracidea, *Gould*, *P.Z.S.*, 1837, p. 141 ... ... H. berigora.

The forms of this genus much resemble those of *Falco*; *nostrils* round, with a distinct central tubercle; *bill* as in Falco; *wing* moderate, second and third quills nearly equal and longest; *tarsi* lengthened, covered in front with large hexagonical scales and transversely plated near the base of the toes; outer and inner toes equal.

Range. The whole of Australia.

1. Hieracidea berigora.*

The Western Brown Hawk.

Falco berigora, *Vig. & Horsf. Trans. Linn. Soc.* xv. p. 184 (1827); *Schl. Revue Accipitr.* p. 47. (1873)

Hieracidea occidentalis, *Gould*, *P. Z. S.*, 1844, p. 105; *Gray*, *Gen. B.*, i. p. 20 (1844); *Gould*, *B. Austr.* i. pl. 12 (1848); *Bp. Consp.* i., p. 22 (1850); *id. Rev. et Mag. de Zool.*, 1854, p. 536; *Strickl. Orn. Syn.*, p. 101 (1855); *Pelz. Verh. z.-b Wein*, xiii., p. 621 (1863); *Gould*, *Hand-bk.*, *B. Austr.* i. p. 33 (1865); *Gray*, *Hand-l. B.* i., p. 22 (1869).

Falco berigora occidentalis, *Schl. Mus. P.-B.* Falc. p. 37 (1862).

Hieracidea berigora, *Sharpe*, *Brit. Mus. Cat. Acc.*, i. p. 421 (1874).

Adult male. "Upper surface sandy brown, strongly inclining to rufous, with which colour most of the feathers are edged, excepting the scapulars and inner secondaries, where the margins incline to fulvous; the feathers of the lower back, rump, and upper tail-coverts broadly tipped with rufous; head a little lighter than the back, with blackish shaft-stripes; forehead,

* Note:—Mr. Sharpe remarks: That the possession by the British Museum of the original types of *Hieracidea berigora*, which were received from the Linnean Society, enables him to prove that the *H. occidentalis* of Gould is the true *H. berigora*.—*Brit. Mus. Cat. Acc.* i. p. 421 (1874).

lores, and an indistinct eyebrow, whitish; nape scarcely at all mixed with white; sides of the face creamy white, the sides of the neck slightly washed with rufous and narrowly streaked with brown; a narrow supraorbital line of feathers, as well as a moustarchial streak, from the fore part of eye down the cheeks and the hinder part of ear-coverts, dark brown; under surface of the body creamy white, with brownish shaft-stripes; thighs, axillaries, and inner under wing-coverts chestnut; outer wing-coverts white; quills dark brown, with a slight tinge of ashy grey, the secondaries paler brown, with rufous-white tips, inner surface of wing white, the inner webs barred with rufous above, each bar being almost continuous with the preceding one on the primaries; tail brown, tipped with white and shaded with ashy, barred with rufous, the bars not being continued entirely across the feather; cere pale yellow; orbits bluish flesh-colour; bill bluish lead-colour, black at tip; feet light ashy grey, tarsal scales in front yellowish white; iris brown. Total length 15·5 inches, culmen 1·15, wing 13, tail 7·8, tarsus 2·55." *Sharpe, Brit. Mus. Cat. Acciptr.* i., p. 421 (1874).

Young. "Similar to the adults, but plainly spotted and banded with rufous above, especially on the wing-coverts and inner secondaries; under surface of body for the most part pale sandy rufous, mottled with creamy white, where the plumage shows signs of approaching adolescence; thighs deep chestnut brown, with faint cross bars of rufous; the facial features more pronounced than in the adult." *Sharpe, Brit. Mus. Cat. Acc.* i. p. 421 (1874).

Adult female. Similar to the male, but a little larger. Total length 17 inches, culmen 1·1, wing 14, tail 8·8, tarsus 2·8.

Remark. The *type specimens* of this species being now in the British Museum, the above descriptions have been doubtless taken from them, and on that account they have been transcribed here.

Measurements of average sized Specimens.

Total length.	Wing.	Tail.	Tarsus.	Bill.	Culmen.	Remarks.
Inches.						
♂ 14·6	11·6	7·6	2·6	0·95	1·1	Adult mntd. in full plumage, from K.G.S.
♂ 15 6	11·6	7·5	2·5	0·9	1·05	Adult, skin in full plumage, K.G.S.
♀ 17·6	12·7	8·4	2·75	1·0	1·15	Not quite adult, K.G.S.

A 1 ♂ ad. mntd. King George's Sound.
A 2 ♂ ad. sk. King George's Sound.
B 1 ♀ sk. King George's Sound.

2. Hieracidea orientalis.

The Brown Hawk.

Cream-bellied Falcon, *Lath. Gen. Hist.* i. p. 230 (1821).

Hieracidea berigora, *Gray, Gen. of B.* i. p. 20 (1844); *Gould, B. Austr.* i. pl. 11 (1848); *Bp. Consp.* i. p. 22 (1850); *Kaup, Contr. Orn.*, 1850, p. 56; *Bp. Rev. et Mag. de Zool.*, 1854, p. 536; *Strickl. Orn. Syn.*, p. 101 (1855); Pelz. Verh. z-b. Wein. xiii. p. 621 (1863); *Gould, Hand-bk. B. Austr.* i. p. 31 (1865); Pelz. Reis. Vov. Vög. p. 8 (1865); *Gray, Hand-l. B.* i. p. 22 (1869).

Falco berigora orientalis, *Schl. Naum*, 1855, p. 254.

Falco berigora, *Schl. Mus. P.-B. Falc.*, p. 37 (1862).

Hieracidea orientalis, *Sharpe, Brit. Mus. Cat. Acc.*, vol. i. p. 422 (1874).

Adult male. "Above brown, the feathers very slightly inclining to rufous on their edges, these margins being a little more distinct on the inner secondaries; crown slightly paler brown, with indistinct blackish shaft-stripes, the nape mixed with white; forehead and a distinct eyebrow, as well as of the sides of the face and of the neck, creamy or buffy white; a narrow streak above the supraorbital ridge, as well as a scant stripe from the fore part of the eye across the cheek, and another running under the eye along the upper margin of the ear-coverts, blackish brown, collecting a little behind the latter; quills dark brown, the primaries and outer secondaries tipped with whitish; spotted on the outer web and barred on the inner one with rufous, the inner face of the quills whitish, owing to all but the terminal bars being joined together; tail brown, with an ashy gloss on the upper surface, slightly tipped with white, barred with rufous on the two centre feathers, but not right across the feather, the others barred on the inner and spotted with rufous on the outer web, the latter marks gradually becoming less on the outer feathers; under surface of body creamy buff, the sides of the body and outer face of thighs brown, converging towards the centre of the lower breast, some of the feathers edged with fulvous; under wing-coverts rich creamy buff, the lower ones and axillaries marked with brown; cere and orbits pale bluish lead-colour; feet very light lead-colour; iris very dark brown. Total length 15·3 inches, culmen 1·1, wing 13, tail 8, tarsus 2·5." *(*Brit. Mus. Cat. Acc.* i. p. 422.)

* I have here given Mr. Sharpe's descriptions, as they have in all probability been taken from the type specimens, or from others carefully compared with the types of this species, for although I have examined a large series of both adults and young of both sexes from various parts of Australia, widely separated, I cannot find any which coincide either with Mr. Gould's description of the adults, or with that given by Mr. Sharpe in the British Museum Catalogue, neither of these agreeing with such birds as, until further proof to the contrary, I must consider to be the adults.

Adult female. Similar to the male, but much larger. Total length 19·5 inches, wing 15·7, tail 9·, tarsus 2·1, bill from base of cere 1·1, from centre of nostril 0·9, culmen 1·3.

Young. "Warmer and more chocolate-brown than the adult, from which they are at once distinguished by the brown on the under parts, which in the nestling covers the whole of the breast, and as the bird advances in age gradually disappears, leaving the chest striped with brown, and the flanks much spotted with fulvous; throat and sides of the face ochraceous buff; forehead very indistinctly indicated, the moustache and feathers below the eye and behind the ear-coverts deep chocolate, and broader than in the adult's; feathers of the upper surface edged with rufous, and spotted and half-barred with the same colour, the bars on the tail a little narrower and more rufous than the adult's." **Brit. Mus. Cat. Acc.* i. p. 423.

I have before me a pair of young birds which differ so considerably from what have previously been described as the young of these species, that I shall here describe them in full:—

Young. All the upper surface dull dark brown, all the feathers conspicuously margined at the tips with rufous, being deepest in tint on the rump and upper tail-coverts; feathers on the head centred with a blackish shaft-stripe; forehead and line over the eye buff; round the back of the neck from the ear-coverts a well-defined broad collar of buffy white; immediately behind the eye and extending over the upper portion of the ear-coverts, a patch of white pencilled with blackish shaft-lines; hind portion of the ear-coverts blackish brown, with rufous margins, lower portion of the ear-coverts, throat, sides of the neck, and chest, rich buff; a narrow black moustarchial stripe extending from the lores on either side of the throat to opposite the ear-coverts; all the under surface rich buff, lighter on the abdomen and under tail-coverts; the sides, flanks, outer portion of the thighs blackish brown, margined with rufous-buff; a few of the feathers on the breast and chest having a brown shaft-line widening into a triangular mark at the tips; under surface of the tail brown, margined at tips with buff, and barred with light rufous, upper surface dark brown, slightly shaded with ashy; the two central feathers barred but not quite across, the outer webs of the others spotted near the shaft and the inner webs barred right across with rich rufous, all margined at the tips with pale rufous; under wing-coverts and axillaries rich buff, many of the feathers blotched at the tips with irregular markings of dark brown; under surface of the wings light rufous buff, the ends of the quills of a darker tint, all the feathers margined at the tips with rufous edged with white, the outer webs spotted, the inner ones crossed with broad bands of rufous which run together on the

* *Vide* note to p. 57.

margins towards the base; scapulars similarly tipped, spotted, and barred with the same tint. Bill light horn colour, bluish round the base, brownish along the culmen, lower mandible faded to straw colour, orbits and cere grey; feet and legs bluish-grey; claws brownish.*

These specimens are very similar in size and markings, the male being 16 inches the female 17 inches in length. The former is from the Ouse River, Tasmania, the latter from "Dabee," New South Wales.

Measurements of Specimens.

Total length.	Wing.	Tail.	Tarsus.	Bill.	Culmen	Remarks.
Inches.						
18·3	14·8	9·5	2·7	1·0	1·1	♂ Shoalhaven, New South Wales, blackish brown, April, 1875.
19·8	15·	9·0	2·75	1·0	1·2	♀ Blackish brown. New South Wales.
19·5	15·4	9·0	3·1	1·1	1·3	♀ Gayndah, Queensland, August, 1870.
15·8	12·5	7·8	2·6	0·9	1·05	♀ King George's Sound, Oct., 1868; blackish-brown plumage.
16·6	13·5	8·4	2·8	0·9	1·1	♀ (?) "Dabee," New South Wales; young, with distinct collar.
16·4	13·1	8·3	2·6	0·85	1·0	♂ Ouse River, Tasmania, March, 1867; distinct collar—young.
16·	14·1	8·5	2·6	1·0	1·1	♀ Rockhampton, Queensland.
17·	14·7	8·5	2·85	1·1	1·2	♀ New South Wales.

A. 1 ad. ♀ mntd.	New South Wales.
A. 2 „ ♀ „	Rockhampton, Queensland.
A. 3 „ ♀ sk.	Burnett River, Queensland.
A. 4 „ ♂ „	Shoalhaven, New South Wales.
B. 1 ♀ (?) semi-adult sk.	King George's Sound.
B. 2 ♂ „ mntd.	New South Wales.
C. 1 ♂ juv. sk.	Ouse River, Tasmania.
C. 2 ♀ ? „ „	"Dabee," New South Wales.

14. TINNUNCULUS. (Vieill.)

Type.

Tinnunculus, *Vieillot, Ois. d'Amér.* Sept. (1807)..... T. sparverius.
Cerchneis, *Boie, Isis*, 1826, p. 976..... T. rupicolus.
Erythropus, *Brehm. Isis*, 1828, p. 1270..... T. vespertinus.
Ægypius, *Kaup, Natürl. Syst.* p. 20 (1829)..... T. tinnunculus.
Pannyschistes, *Kaup. Natürl. Syst.* p. 87 (1829) ..... T. vespertinus.
Falcula, *Hodgs, J.A.S.B.* 1837, p. 365..... T. tinnunculus.
Tichornis *Kaup, Classif. Säug u. Vög.* p. 108 (1844)... T. naumanni.
Pœcilornis, *Kaup*, t.c.p. 108 (1844) ..... T. sparverius.
Dissodectes (*subgenus*) *Sclater, P.Z.S.* 1864, p. 248 ... T. dickersoni.

* A still younger bird, from the Macleay Collection and kindly lent me for examination, has remains of white down on the head, and the light-coloured portions of the under surface are of a rich creamy buff, facial features strongly pronounced.

Generic characters of this genus are much the same as in *Falco*, but the *Tarsi* are more or less lengthened, strong, and covered in front with transverse hexagonal scales; *nostrils* roundish, oval, with distinct central tubercle ; *toes* moderate in length, somewhat elongated, but strong, outer and inner about equal in length ; the distance between the tips of the primaries and the tips of the secondaries greater than half the length of the tail.

The birds of this section are more slightly-built than those of the genus Falco, and more graceful in their flight, frequently poising themselves in the air and hovering with an almost invisible motion of the wings—only one species, closely allied to the European Kestrel (*T. tinnunculus*), inhabits Australia.

Range. "The whole of the Old and New World except Oceania" (*Sharpe*).

1. Tinnunculus cenchroides.

The Nankeen Kestrel.

Falco cenchroides, *Vig. & Horsf. Tr. Linn. Soc.* xv. p. 183 (1826); *Schl. Mus. Pays-Bas*, Falc. p. 29 (1862).

Tinnunculus cenchroides, *Gray, Gen. of B.* i. p. 21 (1844) ; *Gould, B. Aust.* i. pl. 13 (1848) ; *Sturt, Exp. Centr. Austr.* App. p. 14 (1849) ; *Bp. Consp.* i. p. 27 (1850) ; *Kaup, Contr. Orn.* 1850, p. 53 ; *Bp. Rev. et Mag. de Zool*, 1854, p. 527 ; *Strickl. Orn. Syn.* p. 98 (1855) ; *Pelz. Verh. z.-b.* Wien. xiii. p. 626 (1863) ; *Gould, Hand-bk. B. Austr.* i. p. 35 (1865) ; *Diggles, Orn. Austr.* pt. 8 (1869) ; *Gray, Hand-l. B.* i. p. 23 (1869).

Cerchneis cenchroides, *Sharpe, Brit. Mus. Cat. Acc.* i. p. 431 (1874).

Adult male. All the upper surface of the body light rufous ; the scapulars, a few of the inner secondaries and outer series of the wing-coverts having a triangular spot of black near the tip ; head bluish-grey, washed with rufous on the margins of the feathers, the shafts black, which also appears on the nape, and on the sides and back of the neck ; primaries and secondaries blackish brown the marginal half of the inner webs (except at the tips) toothed with white, more widely towards the base, the apex of the teeth like markings margined with pale rufous which forms a wavy line along the centre of the web ; inner primaries and secondaries margined at the tips with buffy white ; primary coverts, spurious wings, and a few of the innermost secondaries irregularly blotched or mottled with rufous ; interscapular region and back clear rufous without spots ; lower part of the rump and upper tail coverts bluish-grey ; tail feathers blue-grey, whitish on the outer webs near the base, but slightly washed with pale rufous towards the tip, all except the outer one, on either side

crossed with a broad black band near the tips, the outer feather on either side having a small black dot near the margin of the inner web, the tips of all white, of less extent on the two central feathers; forehead whitish, sides of the face and ear-coverts greyish—a blackish oblique stripe occasionally tinged with rufous, on either side of the throat from the lores to opposite the ear-coverts; throat and all the under surface white; the chest, sides, and flanks washed with pale rufous, and having narrow shaft-lines of tawny-rufous, which become blackish on the tips of the feathers, widening into a narrow streak on the flanks; axillaries white with blackish brown stripe down the centre; under surface of the wings white, the blackish markings of the upper surface showing through, the tips brown. Bill bluish horn-colour—blackish at the tips—the base of the lower mandible yellowish; cere, orbits, and legs yellow; iris, hazel. Total length 12·5 inches, wing 9·4, tail 6, tarsus 1·55, bill 0·7, culmen 0·8.

Adult female. Similar to the male, but having the head, rump, and tail rufous, of the same tint as the body, the upper tail-coverts tinged with bluish-grey towards the tip; tail rufous, the outer feathers of a paler tint, the inner webs white towards the base, all the feathers crossed with narrow alternate bars, and a subterminal broad band of black, and tipped with white, to a greater extent on the outer ones, the shafts reddish brown; the whole of the head and neck striped with shaft-lines of black, widening into somewhat triangular-shaped markings on the interscapular region, smaller scapulars and median wing-coverts having a triangular spot of black near the tip, the secondaries and larger scapulars barred on both webs with black; shoulders and smallest wing-coverts with a broad lanceolate stripe down the centre; a short broad stripe of blackish tinged with rufous, on either side of the throat from the lores; facial features more distinct than in the male; the forehead, throat, and whole of the under surface white, the chest, sides, and flanks washed with pale rufous; more of the feathers striped than in the male. Total length 13·2 inches, wing 10·5, tail 6·6, tarsus 1·65, bill 0·7, culmen 0·8.

Young. The young of both sexes resemble the adult females, but have the under surface of a dull white and a more extended wash of rufous on the chest and sides, and the stripes more numerous; no tinge of bluish-grey on the upper tail coverts.

Habitat. The whole of the eastern and southern parts of Australia.

A. 1. ♂ ad. sk.	Port Augusta, South Australia.
A. 2. ♀ ad. sk.	N.S. Wales.
B. 1. Semi-adult ♂ skn.	Mudgee, N.S. Wales.
B. 2. Semi-adult ♀ mntd.	N.S. Wales.

Suborder PANDIONES.

Outer toe reversible; toes devoid of feathers; eyes placed laterally in the head; no facial disc; plumage very close and compact, nostrils not concealed by bristles.

Key to the Genera.

a. Distance between tips of primaries and secondaries greater than length of tarsus ..... PANDION.

b. Distance between tips of primaries and secondaries less than length of tarsus... POLIOAETUS.

15. PANDION.

	Type.
Pandion, *Savign. Descr. Egypte, Ois.*, p. 272 (1809).....	P. haliäetus.
Triorches, *Leach, Syst. Cat. Mamm., &c., Brit. Mus.* p. 10 (1816)	P. haliäetus.
Balbusardus, *Fleming, Brit. An.* p. 51 (1828)	P. haliäetus.

Bill short, culmen curved from the base to the tip, which is hooked and acute; the sides compressed, and the lateral margins slightly festooned; the *nostrils* moderate, sublinear, and rather oblique; *wings* reaching to the tip of the tail, with the second and third quills equal and longest; *tail* moderate, and rather even; *tarsi* short, very strong, and entirely covered with reticulated scales; *toes* long, much padded beneath, and united at the base to the middle toe, mostly covered above with small scales, the claws very long, much curved and rounded beneath.

Range. All parts of the world, except the southern portion of South America.

1. Pandion haliaetus.

The Osprey.

Subsp. *a*—**Pandion leucocephalus.**

The Australian or White-headed Osprey.

Pandion leucocephalus, *Gould, Syn. B. Austr.*, pt. iii. pl. 6 (1838); *Gray, Gen. B.* i. p. 17 (1845); *Gould, B. Austr.* i. pl. 6 (1848); *Bp. Consp. Av.* i. p. 16 (1850); *Strickl. Orn. Syn.* p. 65 (1855); *Gould, Hand-bk. B. Austr.* i. p. 15 (1869); *Schl. Vog. Nederl. Ind.*, pp. 12, 52, pl. 3, fig. 3 (1866); *Wall, Ibis*, 1868 p. 15; *Gray, Hand-l. B.* i. p. 15 (1869).

Pandion gouldii, *Kaup, Isis* (1847) p. 270.

Pandion haliaetus, *Subsp. a.*, P. leucocephalus, *Sharpe, Brit. Mus. Cat. Accip.* i. p. 451 (1874).

Adult. Upper surface of the body, wings, and tail, glossy brown, the feathers mesially shaded with a darker tint, many of the feathers of the interscapular region, back, scapulars and shoulders margined with white; primaries blackish brown, black at the tip past of the notch, the inner web becoming white on the margin towards the base, some showing remains of brown bars; a few of the inner primaries, some of the adjacent secondaries and wing-coverts, narrowly margined with buffy white; under surface of the wings white, the outer series of the under-coverts blotched with brown; feathers along the outer margin of the wing from the elbow to the base of the primaries, dark brown margined with white, under surface of the secondaries and of the primaries past the notch ashy-brown, the basal marginal portion of the inner webs white barred down the centre portion with brown; head, throat, and back of the neck white, a few feathers on the nape having a streak of blackish brown down the centre; lores blackish lead-colour; ear-coverts blackish brown, which color extends on to the sides of the neck, where the feathers are brown margined with white; chest, breast, and the lower part of the hind-neck white, much mottled with brown on the tips of the feathers, and occasionally centred with a blackish stripe; the remainder of the under surface, thighs and under tail-coverts white; tail above brown, feathers narrowly margined at the tips with white, the inner webs of a lighter brown, all except the two centre quills broadly margined and toothed with white towards the base; under surface of the tail ashy-white, tips of the feathers ashy margined with white; bill black; legs and feet lead-blue; iris yellow. Total length 25·5, wing 20·, tail 9, tarsus 2·5, bill 1·7*, from nostril 1·2, culmen 1·95.

Obs.—In some specimens, apparently fully adult, the whole of the breast, chest, and sides of the neck are strongly mottled with brown, and the feathers centred with a blackish stripe; the under wing-coverts are barred with brown; the scapulars, upper wing-coverts, and quills scarcely if at all margined with white; in others the whole of the head and neck, except the ear-coverts and sides of the neck immediately behind them, is white, without any brown markings, and the dull brown on the chest takes no definite form, but is for the most part darkest on the centre of the feathers.

Young. "Glossy chocolate-brown, all the feathers terminally margined with buffy white, these margins somewhat tinged with rufous, and broadest on the secondary quills and upper tail-coverts; crown of head black, with white or fulvous margins to the feathers, giving a distinctly streaked appearance; nape white,

* The length of the bill varies considerably, some specimens, measured from the *anterior* margin of the cere, being only 1·2, others 1·35.

not streaked; from behind the eye a broad line of white runs down the side of the neck, slightly streaked with black; below this another line of black feathers, including the ear-coverts, is conterminous; sides of face and entire under parts pure white, somewhat tinged here and there with yellowish-buff; under wing-coverts white, the outer ones strongly washed with tawny buff and crossed with broad bars of dark brown; primaries black, secondaries chocolate-brown like the back, and tipped in the same manner, all of them whitish at base of inner web, indistinctly barred with pale brown; tail feathers alternately barred with dark sepia-brown and ashy brown, tipped with whitish and having whitish shafts; the bars six in number, and more distinct on the inner web, which is buffy-white."*

Range. Over the whole of sea-board of Australia, New Guinea, and adjacent islands.

A. 1 ♀ ad. sk.	King George's Sound.
A. 2 ♂ ad. mntd.	New South Wales.
A. 3 ♀ ad. mntd.	New South Wales.
B. 1 ♂ sk.	King George's Sound.

* *Young.*—Not having a young specimen of the Australian Osprey, I have transcribed this description from the British Museum Catalogue of 1874.

ALPHABETICAL INDEX.

Accipitres, 1.
Accipitrinæ, 2.
Accipiter, 3, 18, 19.
Ægipius, 59.
Æsalon, 47.
affinis (Milvus), 37.
albus (Falco), 11.
albus (Astur), 11.
albirostris (Aquila), 25.
albicillus (Haliaetus), 31.
approximans (Accipiter), 13.
approximans (Astur), 13.
approximans (Nisus), 13.
approximans (Circus), 6.
approximans (Urospiza), 13.
Aquila, 22, 25, 28.
Aquilastur, 27.
Aquilinæ, 2, 21.
assimilis (Circus), 4, 6.
Astur, 3, 8, 9, 11, 12, 13, 15, 16, 17.
Asturinula, 23.
audax (Aquila), 25.
audax (Vultur), 25.
audax (Uroaetus), 25.
australis (Nisus), 19.
axillaris (Elanus), 41.
axillaris (Falco), 41.
axillaris (Circus), 41.
Avicida, 45, 46.

Balbusardus, 62.
Baza, 44, 45.
berigora (Hieracidea), 55, 57.
berigora occidentalis (Falco), 55.
berigora (Falco), 55, 57.
berigora orientalis (Falco), 57.
Blagrus, 30.
blagrus (Haliaetus), 30.
blagrus (Falco), 30.
blagrus (Pandion), 30.
blagrus (Pontoaetus), 31.
blagrus (Ichthyaetus), 31.
Butaetus, 27, 28.
Butastur, 23.
Buteo, 40.
Buteoninæ, 2.

caleyi (Haliaetus), 16.
candidum (Dædalion), 11.
canorus (Haliaetus), 35.
canorus (Ictinoaetus), 35.
cenchroides (Falco), 60.
cenchroides (Tinnunculus), 60.
cenchroides (Cerchneis), 60.
Cerchneis, 59.
Chicquera, 47.
chicquera (Falco), 47.
cineraceus (Circus), 4.
cinereus (Astur), 9.
cinereus (Sparvius), 9.
Circaetus, 23.
Circus, 3, 4, 6, 41.
cirrhocephala (Urospizia), 19.
cirrhocephalus (Accipiter), 19.
cirrhocephalus (Sparvius), 19.
cirrhocephalus (Nisus), 19.
clarus (Falco), 11.
cœruleus (Elanus), 41.
communis (Falco), 47, 48.
Cooperastur, 18.
cruenta (Urospiza), 15.
cruentus (Astur), 15.
cruentus (Urospizia), 15.
cruentus (Accipiter), 15.
cuculoides (Baza), 45.
cultrunguis (Ichthyaetus), 30.
Cuncuma, 30, 31.
cuneicaudata (Aquila), 25.
cyaneus (Circus), 4.

Dædalion, 8, 11.
Dendrofalco, 47.
Dentiger, 33.
dimidiatus (Falco), 30.
dimidiatus (Haliaetus), 30
Dissodectes, 59.
Dryotriorchis, 23.

Erythrocnema, 3.
Elanoides, 24.
Elanus, 24, 41, 43.
Eutolmaetus, 27.
Erythropus, 59.
Erythrotriorchis, 8, 16.

Falcones, 1.
Falconidæ, 2.
Falconinæ, 2, 44.
Falco, 11, 13, 16, 19, 25, 30, 33, 41, 44, 47, 48, 49, 50, 55, 57, 60.
Falcula, 59.
fasciatus (Astur), 13.
fasciatus (Nisaetus), 27.
fasciatus (Entolmaetus), 27.
fasciatus (Pseudactus), 27.
fasciatus (Aquilastur), 27.
frontatus (Falco), 51.
frontatus (Hypotriorchis), 51.
franciscæ (Astur), 8.
fucosa (Aquila), 25.
fucosus (Falco), 25.
fucosus (Uroaetus), 25.

Gampsonyx, 24.
Gennaia, 47, 49.
Geranospizias, 3.
Glaucopteryx, 4.
girrenera (Haliastur), 33.
girrenera (Haliaetus), 33.
gouldii (Circus), 6.
gouldii (Pandion), 62.
Gypaetus, 22.
Gypohierax, 23.
Gypoictinia, 24, 40.

Haliaetus, 16, 23, 30, 33, 35.
haliaetus (Pandion), 62.
haliaetus (Triorchis), 62.
haliaetus (Balbusardus), 62.
Haliastur, 23, 33, 35.
Harpa, 44.
Harpagus, 44.
Helotarsus, 23.
Henicopernis, 24.
Herpetotheres, 23.
Hieracidea, 45, 55, 57.
Hieraspiza, 18.
Hieraetus, 27.
Hierofalco, 45, 49, 50.
Hydroictinia, 37.
hypoleucus (Gennaia) 49.
hypoleucus (Falco), 49.
hypoleucus (Hierofalco) 49.
Hypotriorchis, 47, 51.

Ichthyaetus, 30, 31.
Ictinoaetus, 33, 35.
Ictinia, 44.
Ieracidea, 55.
Ierax, 18.
indus (Haliastur), 33.
indus (Haliaetus), 33.
isura (Lophoictinia), 38.
isurus (Milvus), 38.

jardinii (Circus), 4.
jardinii (Spilocircus), 4.
jardinii (strigiceps), 4.
jugur (Falco), 47.
jugur (Gennaia), 47.

korschun (Milvus), 37.
korschun (Hydroictinia), 37.

Lepidogenys, 45.
Leptodon, 24.
leucactus (Falco), 11.
leucocephalus (Pandion), 62.
leucogaster (Blagrus), 31.
leucogaster (Cuncuma), 31.
leucogaster (Falco), 30.
leucogaster (Haliaetus), 30.
leucogaster (Ichthyaetus), 30.
leucogaster (Polioaetus), 31.
leucogaster (Pontoaetus), 30.
leucosomus (Astur), 12.
Leucospiza, 8, 9.
leucosternon (Gypoictinia), 40.
leucosternus (Haliastur), 33.
leucosternus (Ictinoaetus), 33.
leucosternus (Haliaetus), 33.
Lithofalco, 47.
longipennis (Falco), 51.
Lophoaetus, 23.
Lophoictinia, 24, 38.
Lophospiza, 8.
Lophotes, 45.
lophotes (Baza), 45.
lophotes (Lepidogenys), 45.
lophotes (Hytiopus), 45.
Lophotriorchis, 22.
lunulatus (Falco), 51.
lunulatus (Sparvius), 51.
lunulatus (Hypotriorchis), 51.

Macheirhamphus, 25.
macropus (Falco), 48.
maculosus (Circus), 4.
maculosus (Spilocircus), 4.
melanogenys (Falco), 48.
melanops (Accipiter), 19.
melanopterus (Elanus), 41.
melanosterna (Gypoictinia), 40.
melanosternon (Buteo), 40.
melanosternon (Gypoictinia), 40.
Melierax, 3.
Micrastur, 3.
Microhierax, 44.
migrans (Milvus), 37.
Milvaquila, 33.
Milvus, 24, 35, 37, 38.
morphnoides (Aquila), 28.
morphnoides (Nisaetus), 28.
morphnoides (Hieraetus), 28.
morphnoides (Butaetus), 28.

Nauclerus, 24.
naumanni (Tinnunculus), 59.
Neopus, 22.
Nisaetus, 22, 27.
Nisoides, 3.
Nisus, 13, 16, 18, 19.
nisus (Accipiter), 18.
nisus (Falco), 19.
niveus (Sparvius), 11.
notatus (Elanus), 41.
novæ-hollandiæ (Astur), 8, 9, 11, 12.
novæ-hollandiæ (Falco), 11.
novæ-hollandiæ (Leucospiza), 8, 11.

occidentalis (Hieracidea), 55.
occidentalis (Falco), 55.
orientalis (Falco), 57.
orientalis (Hieracidea), 57.

pacificus (Milvus), 38.
palumbarius (Astur), 8.
Pandion, 30, 62.
Pandiones, 1, 62.
Pannyschistes, 59.
pennatus (Nisaetus), 27.
perigrinus (Falco), 48.
Pernis, 25, 46.
Pœcilornis, 59.
Polioaetus, 31, 62.
Poliohierax, 44.
Polyborinæ, 2.
Polyboroides, 3.
Pontoaetus, 30, 31.
ponticerianus (Falco), 33.
Pseudaetus, 27.
Pterocircus, 4.
Pygarus, 4.
pygarus (Circus), 4.

regalis (Milvus), 37.
radiata (Urospiza), 13.
radiatus (Accipiter), 17.
radiatus (Astur), 13, 16, 17.
radiatus (Falco), 13, 16.
radiatus (Nisus), 16.
radiatus (Sparvius), 16.
radiatus (Erythrotriorchis), 17.

radiatus (Urospizias), 17.
rayi (Leucospiza), 9.
Rosthramus, 24.

Scelospiza, 8.
scriptus (Elanus), 43.
Sparvius, 8, 9, 11, 16, 19, 51.
sphenurus (Haliaetus), 30, 35.
sphenurus (Haliastur), 35.
sphenurus (Milvus), 35.
Spilocircus, 4.
Spilornis, 23.
Spizaetus, 22.
Spizacircus, 4.
Spiziapteryx, 44.
Spiziastur, 22.
Striges, 1.
Strigiceps, 4.
subbuteo frontatus (Falco), 51.
subcristata (Avicida), 46.
subcristata (Baza), 45, 46.
subcristatus (Pernis), 46.
subcristatus (Lepidogenys), 45.
subniger (Falco), 50.
subniger (Hierofalco), 50.
Tachyspiza, 8.
Teraspiza, 18.
testaceus (Astur), 17.
Thalassoaetus, 30.
Tichornis, 59.
Tinnunculus, 45, 47, 59, 60.
Tolmaetus, 27.
torquata (Urospiza), 19.
torquatus (Accipiter), 19.
tricolor (Urospizia), 17.
Triorches, 62.
Turumtia, 47.
Uroaetus, 22, 25.
Urospiza, 8, 13, 15, 19.
Urospizia, 15, 17, 19.
Urospizias, 8, 17.
Urotriorchis, 3.

Vultur, 25.
Vulturidæ, 2.

wolfi (Circus), 6.

Sydney: Thomas Richards, Government Printer.—1876.

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